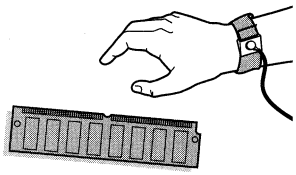
# EuroForm IPDS 100

# User Guide



**Caution**

DIMM boards and your printer formatter board can be damaged by small amounts of static electricity. When handling a DIMM or other board, wear an antistatic wrist strap connected to the metal frame of the printer (or to your antistatic system). During installation, to prevent generation of static electricity, avoid moving about the work area.

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# Introduction

## About this Manual

Thank you for purchasing the EuroForm IPDS 100 DIMM providing emulation support for the IBM Intelligent Printer Data Stream (IPDS) for your hp LaserJet printer. Using the hp JetDirect Card your printer becomes an IBM host workstation printer capable of printing IPDS documents from an AS/400, System/370, or System/390.

This document describes the configuration of the EuroForm IPDS 100 solution. It will help you to understand, use, and change the option settings for receiving IPDS jobs over the LAN and for formatting the way IPDS jobs are printed. Information on system requirements and how to install the DIMM is described in the document “Getting Started Guide” enclosed in the EuroForm IPDS 100 package.

If you need basic information about your hp LaserJet printer set-up or general printer operation, please refer to the specific printer documentation.

## System Requirements

IBM provides a variety of host software products with components that generate IPDS commands for IPDS printers. These software products vary in their use of IPDS functions. Some of the software products available are:

- Graphical Data Display Manager (GDDM) Release 2.3 or higher
- OS/400 Version 2.1 or higher
- Print Service Facility (PSF/VM) Release 2.1.1 or higher
- Print Service Facility (PSF/MVS) Release 2.1.0 or higher
- Print Service Facility (PSF/VSE) Release 2.2.1 or higher
- Print Service Facility (PSF/400) Release 3.1 or higher
- Print Service Facility (PSF/2) Release 1.0 or higher
- Print Service Facility (PSF/6000) Release 1.2 or higher
- OfficeVision/400 Version 2.2 or higher
- Business Graphics Unit (BGU)
- Control Language (CL) and Data Description Specifications (DDS)
- OS/400 Graphics
- AFP Utilities/400 Version 2.2 or higher

## Support

If you encounter any problems or if you have further questions please contact your local reseller or send an e-mail to support@euroform.com.

EuroForm IPDS 100 firmware updates, updates to this User Guide, and other relevant information may be found at http://www.euroform.com/ipds100.

Please contact hp for printer or JetDirect print server firmware updates.

# Configuration Parameters

## Resource Resolution

This option defines the supported font and image resolution that the EuroForm IPDS 100 reports back to the IBM host system.

**240 dpi** Print at 240 pel resolution
**300 dpi*** Print at 300 pel resolution
**600 dpi** Print at 600 pel resolution

If for example your are replacing IBM 3812/16 printers and the resources such as fonts and images on the IBM host only is available in 240 dpi, then this option should be set to 240 dpi.

## Color Support

*Note: This option is only displayed if the EuroForm IPDS 100 is installed in an HP Color LaserJet printer.*

This option defines whether the IPDS data will be printed in color or in greyscales.

**Enable*** IPDS data will be printed in color.
**Disable** Print IPDS data as greyscales.

## Default Font

Selects the default FGID to be used by the EuroForm IPDS 100 when the IBM host does not send an FGID at the start of a job.

**11*** Courier.
**86** Letter Gothic.

## Default Font Size

Selects the default characters per inch (CPI) to be used by the EuroForm IPDS 100 when the IBM host does not send a CPI value at the start of a job.

**5.0** 5 characters per inch

**10.0*** 10 characters per inch

**12.0** 12 characters per inch

**13.3** 13.3 characters per inch

**15.0** 15 characters per inch

**16.7** 16.7 characters per inch

**20.0** 20 characters per inch

The option does not apply to the fixed pitch fonts

## Font Substitution Action

This option defines how the reporting to the IBM host will be if a selected font does not correspond to a valid combination of code page and character set.

**Select Closest*** The printer makes an intelligent decision concerning whether the selected combination of code page and character set is adequately supported. This setting will report very few exceptions. If the selected font is not found, the printer will substitute with the closest matching font. If a font/code page combination is selected, which is not fully supported, characters may be missing.

**Report Mismatch** The printer reports an exception to the IBM host when a requested font/code page or substituted font/code page combination is not valid.

## Default Code Page

This option defines the default code page ID (CPID) with the appropriate character set to be used.

The following CPID's can be selected from the printer front panel:

| | | |
|---|---|---|
| **0** | AutoSelect | If letter, legal or ledger paper size is found in any of the input trays the CPID is set to 1140 otherwise it is set to 1148 |
| **1** | Chai Specified | Use CPID selected via the web interface |
| **37** | US/Can-37 | US, Can, Dutch, Brazilian, Portuguese |
| **273** | Aus/Ger-273 | Austria, Germany |
| **274** | Belgian-274 | Belgian |
| **277** | Dan/Nor-277 | Danish, Norwegian |
| **278** | Fin/Swe-278 | Finnish, Sweden |
| **280** | Italian-280 | Italian |
| **282** | Portuguese-282 | Portuguese |
| **284** | Spanish-284 | Spanish |
| **285** | UK English-285 | UK English |
| **297** | French-297 | French |
| **423** | Greek 183-423 | Greek 183 |
| **424** | Hebrew-424 | Hebrew |
| **500** | Multi-500 | Multinational |
| **871** | Icelandic PC-871 | Icelandic PC |
| **880** | Cyr Multi-880 | Cyrillic Multilingual |
| **905** | Lt 3 Multi-905 | Latin 3 Multilingual |
| **1140** | US/Can (E)-1140 | US, Canadian, Dutch, Brazilian, Portuguese with Euro |
| **1141** | Aus/Ger (E)-1141 | Austrian, German with Euro |
| **1142** | Dan/Nor (E)-1142 | Danish, Norwegian with Euro |
| **1143** | Fin/Swe (E)-1143 | Finnish, Swedish with Euro |
| **1144** | Italian (E)-1144 | Italian with Euro |
| **1145** | Spanish (E)-1145 | Spanish with Euro |
| **1146** | UK Eng (E)-1146 | UK English with Euro |
| **1147** | French (E)-1147 | French with Euro |
| **1148** | Bel/Sw (E)-1148 | Multinational Belgian, Swiss with Euro |
| **1149** | Ice w. (E)-1149 | Iceland with Euro |

Additionally the CPID's below can be selected via the web interface:

| | | |
|---|---|---|
| **0** | AutoSelect | If letter, legal or ledger paper size is found in any of the input trays the CPID is set to 1140 otherwise it is set to 1148 |
| **37** | US/Can-37 | US/Canadian |
| **38** | US ASCII-38 | US ASCII (as EBCDIC) |
| **259** | Sym Set 7-259 | Symbols, Set 7 |
| **260** | Can/Fr-116 | Canadian French – 116 |
| **273** | Aus/Ger-273 | Austria, Germany |
| **274** | Belgian-274 | Belgian |
| **275** | Brazilian-275 | Brazilian |
| **276** | Can/Fr-276 | Canada (French) |
| **277** | Dan/Nor-277 | Danish, Norwegian |
| **278** | Fin/Swe-278 | Finnish, Sweden |
| **280** | Italian-280 | Italian |
| **281** | Japanese-281 | Japanese |
| **282** | Portuguese-282 | Portuguese |
| **284** | Spanish-284 | Spanish |
| **285** | UK English-285 | UK English |
| **286** | Aus/Ger Alt-286 | Austria, Germany Alt |
| **287** | Dan/Nor Alt-287 | Danish, Norwegian Alt |
| **288** | Fin/Swe Alt-288 | Finnish, Sweden Alt |
| **289** | Spain Alt-289 | Spain Alt |
| **290** | Japan-290 | Japan (Katakana) |
| **293** | APL-293 | APL |
| **297** | French-297 | French |
| **310** | APL-310 | APL |
| **361** | Multi Pub-361 | Multinational Pub. |
| **363** | Sym Set 8-263 | Symbols, Set 8 |
| **367** | ASCII 7 bit-367 | ASCII 7 bit |
| **382** | Ger Pub-382 | German Publishing |
| **383** | Bel Pub-383 | Belgian Publishing |

| | | |
|---|---|---|
| **384** | Brz Pub-384 | Brazilian Publishing |
| **385** | Can/Fr Pub-385 | Canadian French Pub. |
| **386** | Dan/Nor Pub-386 | Danish/Norwegian Pub. |
| **387** | Fin/Swe Pub-387 | Finnish, Swedish Pub. |
| **388** | Fr Pub-388 | French Publishing |
| **389** | Italian-389 | Italian Publishing |
| **390** | Japan Pub-390 | Japanese Publishing |
| **391** | Por Pub-391 | Portuguese Publishing |
| **392** | Spanish Pub-392 | Spanish Publishing |
| **393** | Lt Am Sp Pub-393 | Latin Amer. Spanish Pub. |
| **394** | UK Eng Pub-394 | UK English Publishing |
| **395** | US/Can Pub-395 | US/Canadian English Pub. |
| **420** | Arabic Bi-420 | Arabic Bilingual |
| **423** | Greek 183-423 | Greek 183 |
| **424** | Hebrew-424 | Hebrew |
| **437** | Multi(US) PC-437 | Multinational (US) PC |
| **500** | Multi-500 | Multinational |
| **803** | Hebrew Set A-803 | Hebrew Set A |
| **813** | Greek ISO-813 | Greek ISO(ASCII 8 bit) |
| **819** | ISO Latin 1-819 | ISO Latin 1 |
| **829** | Math Symbols-829 | Math Symbols |
| **850** | Multi PC-850 | Multinational PC |
| **851** | Greek PC-851 | Greek PC |
| **852** | East (E) PC-852 | Eastern Europe PC |
| **853** | Lt 3 Multi-853 | Latin 3 Multilingual PC |
| **855** | Cyrillic PC-855 | Cyrillic PC |
| **856** | Hebrew PC-856 | Hebrew PC |
| **857** | Latin 5 PC-857 | Latin 5 PC |
| **858** | Multi PC (E)-858 | Multinational PC w. Euro |
| **860** | Por PC-860 | Portuguese PC |
| **861** | Icelandic PC-861 | Icelandic PC |

| | | |
|---|---|---|
| **862** | Hebrew PC-862 | Hebrew PC |
| **863** | Can/Fr PC-863 | Canadian French PC |
| **864** | Arabic PC-864 | Arabic PC |
| **865** | Nordic PC-865 | Nordic PC |
| **866** | Cyr #2 PC-866 | Cyrillic #2 PC |
| **869** | Greek PC-869 | Greek PC |
| **870** | Lt 2 Multi-870 | Latin 2 Multilingual |
| **871** | Icelandic PC-871 | Icelandic PC |
| **875** | Greek-875 | Greek |
| **876** | OCR-A ASCII-876 | OCR-A ASCII |
| **877** | OCR-B ASCII-877 | OCR-B ASCII |
| **880** | Cyr Multi-880 | Cyrillic Multilingual |
| **892** | OCR-A-892 | OCR-A |
| **893** | OCR-B-893 | OCR-B |
| **897** | Japan PC-897 | Japan PC ((Katakana) |
| **899** | Sym 7 ASCII-899 | Symbols, Set 7 ASCII |
| **905** | Lt 3 Multi-905 | Latin 3 Multilingual |
| **910** | APL-910 | APL |
| **912** | Latin 2-912 | Latin 2 ISO/ANSI 8 Bit |
| **914** | Latin 4-914 | Latin 4 ISO/ASCII |
| **915** | Cyrillic-915 | Cyrillic ISO/ASCII 8 bit |
| **916** | Hebrew-916 | Hebrew ISO/ASCII 8 bit |
| **920** | Latin 5-920 | Latin 5 ISO/ANSI 8 bit |
| **923** | Latin 9-923 | Latin 9 |
| **924** | Latin 9-924 | Latin 9 EBCDIC |
| **1002** | DCF r 2 Com-1002 | DCF Rel 2 Compatible |
| **1003** | US Text sub-1003 | US Text Subset |
| **1004** | IBM PC pub-1004 | IBM PC Desktop Pub. |
| **1008** | Arabic-1008 | Arabic ISO/ASCII 8 bit |
| **1025** | Cyr Multi-1025 | Cyrillic Multilingual |
| **1026** | Latin 5-1026 | Latin 5 |
| **1027** | Jp Ext-1027 | Japanese Extended |

| | | |
|---|---|---|
| **1028** | Hebrew Pub-1028 | Hebrew Publishing |
| **1029** | Ara Ext-1029 | Ara. Ext ISO/ASCII 8 bit |
| **1038** | Sym, Adobe-1038 | Symbols, Adobe ASCII |
| **1039** | GML Lst Sym-1039 | GML List Symbols |
| **1041** | Jp Ext PC-1041 | Japanese Extended PC |
| **1046** | Ara Ext-1046 | Ara. Ext ISO/ASCII 8 bit |
| **1068** | Txt Num Spc-1068 | Txt with Numeric Spacing |
| **1069** | Lt 4 EBCDIC-1069 | Latin 4 EBCDIC |
| **1087** | Sym Adobe-1087 | Symbols, Adobe |
| **1091** | Sym Mod s 7-1091 | Symbols, Modified Set 7 |
| **1092** | Sym Mod-1092 | Symbols Mod. Set 7 ASCII |
| **1110** | Bal (Lt 2)-1110 | Baltic Countries Latin 2 |
| **1112** | Bal coun.-1112 | Baltic countries |
| **1122** | Bal coun.-1122 | Baltic countries |
| **1140** | US/Can (E)-1140 | US/Canadian w. Euro |
| **1141** | Aus/Ger (E)-1141 | Austrian, German w. Euro |
| **1142** | Dan/Nor (E)-1142 | Danish/Norwegian w. Euro |
| **1143** | Fin/Swe (E)-1143 | Finnish, Swedish w. Euro |
| **1144** | Italian (E)-1144 | Italian w. Euro |
| **1145** | Spanish (E)-1145 | Spanish w. Euro |
| **1146** | UK Eng (E)-1146 | UK English with Euro |
| **1147** | French (E)-1147 | French w. Euro |
| **1148** | Bel/Sw (E)-1148 | Multi. Bel./Sw w. Euro |
| **1149** | Ice w. (E)-1149 | Iceland w. Euro |
| **1301** | ZIP POSTNET-1301 | ZIP POSTNET |
| **1302** | Face ID Mrk-1302 | Facing ID Marks |
| **1303** | Bsn Rpl Bar-1303 | Business Reply Bar |

## Codepage Version

Some code pages are available in two versions, i.e. some characters differ between the two versions of the same code page. This option determines which version of a code page is used.

**Version 1*** Use version 1 of the selected code page.

**Version 0** Use version 0 of the selected code page.

## Font Capture

*Note: This option only displays if a hard disk is installed in the printer.*

This option controls the capturing of eligible bitmap fonts (LF1 format) and eligible outline fonts (LF3 format) from the host by the IPDS emulation. If the IPDS job specifies a font, which is a permanent resident printer font or a font already captured, the host selects the resident or captured font and does not download the font. This saves time and network traffic. See the section “Font Capturing” for further details.

**Disable*** No fonts are captured. Fonts already captured remain in the printer.

**Save To Disk** Capture fonts and store them on the printer hard disk. A hard disk with sufficient space has to be available in order to store captured fonts.

*Note: You should always check your font licensing information before making a font eligible for capture.*

## Remove Captured Fonts

To remove all captured fonts stored on the printer hard disk go to the ”Advanced” menu in the web configuration interface. Please refer to the “Configurations Options” section for further details on how to use the web configuration interface. Select “YES” under “Remove Captured Fonts” and the captured fonts will be deleted.

## Valid Printable Area

This option defines the printable area on the page and how clipping is performed. Top, bottom, and side margins for your print jobs are set through your print application.

**Whole Page*** The printable area is some millimetres inside the physical page dependent on the specific HP LaserJet model. This printable area is reported to the host. Clipping occurs if data is printed outside the printable area. All four edges will be clipped.

**Trim** The printable area is some millimetres inside the physical page dependent on the specific HP LaserJet model. This printable area is reported to the host. If the logical page is outside the printable area it is moved down and to the right. The right and bottom edges will be clipped.

**Physical Page** The printable area is the physical page (edge to edge). The physical page printable area is reported to the host. With this setting active, you may need to adjust the left margin setting.

**Scale to Fit** The printable area is the physical page (edge to edge). The physical page printable area is reported to the host, however, when the page is actually printed, the page image is compressed in both the horizontal and the vertical direction so it fits inside the actual printable area.

## Duplex Control

This option defines how the duplex option is reported back to the IBM host system and how it is used.

**Auto*** Use and report duplex if a duplexer is installed.

**Yes** Always report duplex.
If a duplexer is not installed, the pages are printed in simplex.

**No** Do not report duplex.
Pages are printed in simplex even with a duplexer installed.

## Page Counter Action

This option selects the method used for updating IPDS page counters.

**Regular Update*** Jam and stacked page counters are updated when pages are printed.

**Early Update** All page counters are updated when they are processed but not printed. Pages may be lost if power or printer failure occurs. However, selecting this option may increase printing speed.

*Note: When Early Update is selected, Intervention Required messages are not reported to the IPDS Host.*

## Exception Reporting

It is often practical to suppress exception reporting on undefined characters and on position errors (printing outside the valid printable area (VPA)). This option overrides the Exception Handling Control in the IPDS data stream.

**No filter*** No suppression of exceptions. The IPDS data stream controls exception reporting.

**Skip VPA** Exception reporting of position errors (outside VPA) is suppressed. The printer IPDS emulation will print the IPDS job but not report "08C1" printable area exceptions or "0411" bar code exceptions to the IBM host.

**Skip Undef Char** If an undefined character is found, Exception Reporting is suppressed. The printer IPDS emulation will print the IPDS job but not report "0821" undefined character exceptions to the IBM host.

**Skip Both** Both position errors and undefined character exceptions are suppressed.

## Intervention Required Reporting

This option defines if the emulation should report *Intervention Required* events to the IBM host. Types of *Intervention Required* events include paper jam, paper out, cover open or offline situations. These types of events mean that the printer is not ready to print.

**Yes*** Report *Intervention Required* events to the IBM host.

**No** Do not report *Intervention Required* messages to the IBM host.

*Note: When Page Counter is set to "Early Update", Intervention Required events are not reported to the IBM host.*

## Source Mapping

This option defines the mapping of the host's request for a physical feeder or input tray in the printer. Any host input source can be mapped to any physical printer input source. The IPDS host ID is mapped to a printer input source. Input sources can be any input device available on the actual printer including the envelope feeder, manual paper feed, and manual envelope feed.

The value range for the IPDS Host ID is 0 to 255.

The default relationship between the IPDS host ID's and the printer trays are:

| IPDS Host ID | Printer Tray |
|---|---|
| 0 (00H) | Tray 2 |
| 1 (01H) | Tray 3 |
| 2 (02H) | Tray 4 |
| 99 (63H) | Manual Paper (Tray 1) |

If an IPDS Host ID without any mapping is selected or if an ID outside the valid range is selected, then the Printer Tray 2 is used.

If an IPDS Number is mapped (used) twice, then the last mapping in the list will be the active one.

*Note: For the Source Mapping to work correctly, the MEDIA TYPE for each input tray must be set differently. The only time you would set the MEDIA TYPE the same value is when you want to link the input trays.. For setting up the MEDIA TYPE please refer to the specific hp LaserJet printer documentation.*

## Target Mapping

This option defines the mapping of the host's request for a physical output bin in the printer. The IPDS Host ID is mapped to a physical printer bin. Printer output bins include the standard output bin (face-down), the face-up output bin and any optional output bins attached to the printer.

The valid range for the IPDS Host ID is 1 to 255.

The default target mapping is:

| IPDS Host ID | Printer Bin |
|---|---|
| 1 | Standard Output Bin (Bin 2) |

If an IPDS Host ID without any mapping is selected or if an ID outside the valid range is selected, then the Standard Output Bin is used.

If an IPDS ID is mapped (used) twice, then the last mapping in the list will be the active one.

## Margins

These margin settings are used to adjust the position of the image on the physical page. Margin settings affect all IPDS jobs and are not affected by any IPDS commands in the job.

Margins may be adjusted for all input trays and feeders using the four Default Margins values: Margin Front Top, Margin Front Left, Margin Back Top and Margin Back Left. Front and Back refer to the front page and the back page of a sheet of paper printed in duplex. Additional adjustments may be made to an individual tray or feeder using the Margins Option for the specific tray or feeder. Most often, the Default Margins settings will remain at the default setting of zero and adjustments will be made using the specific tray or feeder margins settings. The specific tray or feeder margin adjustments determine the margin adjustment for a specific tray or feeder if specified; otherwise the Default Margins settings are used.

Margin adjustments are in 1/300 inch.

The valid range is –300 to +300.

# Font Capturing

The Font Capture option allows capture of eligible bitmap fonts (LF1 format) and eligible outline fonts (LF3 format) received from the host. These fonts will be stored (captured) on the printer's hard disk. Fonts intended for capturing must be marked eligible for capture on the host before they will be downloaded to the printer for capture. Fonts, which are resident on the printer, will not be downloaded for capture by the host.

*Note: You should always check your font licensing information before making a font eligible for capture.*

## Storage, Use, and Clearing of Printer Captured Fonts

Fonts eligible for capture will be stored on a hard disk in the printer. Please note that for some LaserJet products/models the hard disk is an optional storage media, and it is ordered separately from the printer. When a font is captured on the printer, it appears as a resident printer font to the host. The font does not need to be downloaded again if the session is ended and restarted.

Captured fonts are only available to the IPDS emulation. The resolution of the captured font must match the IPDS emulation resolution for the font to be used by the host application. For instance, a font captured with a 300 pel resolution can not be used by the IPDS emulation when it is emulating an IBM 3812/16 printer. The fonts used in emulating a 3812/16 printer have a resolution of 240 pels.

*Note: Captured fonts are available for use by any host connected to the printer. Sensitive fonts should not be made eligible for capture.*

Fonts captured to printer hard disk remain in the printer until:

- Overwritten by a later font capture with a font having the same characteristics
- Cleared by using the Remove Captured Fonts option in the "Advanced" menu in the web configuration interface.

*Note: The IPDS data stream does not define commands for clearing captured fonts from the printer. Fonts may be removed using Remote Configuration parameters.*

# Capturing Fonts From an AS/400

### AS/400 Program Requirements

PSF/400 V4R2 or later is required for making fonts eligible for capture.

### Making Fonts Eligible for Capture on the AS/400

Two steps are required on the AS/400 to capture fonts. These are:

1. Make the font resource eligible for capture.

   To mark a font resource eligible for capture, set FNTCAPTURE to *YES. This is done when you create the font resource using the CRTFNTRSC command or change the font resource using the CHGFNTRSC command. A raster font is built from a font character set and a code page. Both of these font resources must be marked eligible for the raster font to be captured. Additional information on font capture may be found in *OS/400 Printer Device Programming V4R4 Version 4 (SC41-5713)* and in *IBM AS/400 Printing V (SG24-2160)*.

2. Identify the printer as being capable of capturing fonts. Set the FNTCAPTURE parameter to *YES in the printer PSFCONFIG.

## Capturing Fonts From a Mainframe Host

### Mainframe Program Requirements

Font capture is supported by PSF/MVS 2.2.0 with APAR OW08340 and PSF/VSE 2.2.1 with APAR DY43969.

### Making Fonts Eligible for Capture on a Mainframe

*Note: The procedures/documentation below are for OS390/MVS/PSF platform.*
*The following are the software release requirements for font capture feature within this platform. (For details on font capture with PSF refer to the PSF Customization Guide, Program Number: 5655-B17): OS390/MVS 2.4 or later & PFS for MVS 2.2 or later.*
*Earlier releases may also support "Font Capture". For details – please check your "PSF Customization Guide".*

There are basically 3 steps involved regarding font capture as follows:

1. Display current font marking status.
2. Mark fonts for capture.
3. Send job from host to printer with the font and font character set you want printer to capture.

Fonts on the host can be marked either "PUBLIC", "PRIVATE", or "UNMARKED". In order for the printer to capture fonts as resident the fonts must be marked "PUBLIC" on the host. Fonts marked "PRIVATE" are only temporarily downloaded and are removed from printer by the host. "UNMARKED" fonts are treated the same as if they were marked "PRIVATE" and will not be captured as printer resident fonts.

### STEP 1. Display current font marking status

To determine the marking status of your host fonts you can run the APSRMARK report utility. The following is a sample of the JCL to run the font report listing.

Sample JCL to run font report listing to determine current font marking status:

```
//APSHORT  JOB   (),
//         CLASS=A,
//         MSGCLASS=A,
//         MSGLEVEL=(1,1),
//         NOTIFY=&SYSUID,
```

```
//         TIME=1440
//*** NOTE: USE THIS JOB TO PRINT SHORT FONT STATUS MARKINGS ONLY ****
//*** NOTE: CHANGE DSN LINE 13 (IN1 STATEMENT) TO MATCH YOUR FONTLIB *
//*******************************************************************
//STEP1    EXEC  PGM=APSRMARK
//SYSPRINT DD SYSOUT=J
//*
//IN1    DD UNIT=3390,DSN=SYS1.FONTLIBB,DISP=SHR,VOL=SER=OS3R7A
//SYSIN  DD *
  INDD=IN1,MEMBER=ALL,REPORT,SHORT
/*
```

*Note: Change report type to "LONG" for font detailed report (replace the "SHORT" option).*

**STEP 2. Marking fonts for capture**

In order for printer to capture host fonts as resident printer fonts they must be marked "PUBLIC". The following is a sample of the JCL commands to mark existing fonts as "PUBLIC".

Sample JCL to Mark Fonts "PUBLIC":

```
//APSMARK  JOB   (),
//         CLASS=A,
//         MSGCLASS=A,
//         MSGLEVEL=(1,1),
//         NOTIFY=&SYSUID,
//         TIME=1440
//*******************************************************************
//* THIS JOB WILL MARK FONTS FOR CAPTURE FOR PRINTER FROM FONT LIB.   *
//* MARK THEM AS EITHER PUBLIC OR PRIVATE. TO MARK PUBLIC ENTER       *
//* "PUBLIC" KEYWORD ON LINE 18 INDD STATEMENT. FOR PRIVATE ENTER     *
//* "PRIVATE" KEYWORD ON LINE 18 INDD STATEMENT. THEN SUBMIT.         *
//* TO DISPLAY STATUS MARKING CHANGE RUN REPORT JOB "APSSHORT".       *
//*******************************************************************
//* NOTE: USE "REPLACE" IF MEMBER ALREADY EXIST: SEE FOLLOWING EXAMPLE*
//* NOTE: USE "REPLACE" IF MEMBER ALREADY EXIST: SEE FOLLOWING EXAMPLE*
//* INDD=IN1,OUTDD=OUT1,MEMBER=C0H20000,PUBLIC,REPLACE                *
//*******************************************************************
//* NOTE: BEFORE YOU RUN THIS JOB YOU MUST ALLOCATE NEW FONTLIB DSN   *
//* 1ST CREATE NEW LIB, THEN USE IEBGENER TO COPY FROM OLD LIB        *
//* I.E. SYS1.FONTLIBB TO NEW LIB SYS1.FONTPRIV OR SYS1.FONTPUB       *
//*******************************************************************
//STEP1    EXEC  PGM=APSRMARK
//SYSPRINT DD SYSOUT=J
//*
//IN1    DD UNIT=3390,DSN=SYS1.FONT300,DISP=SHR,VOL=SER=OS3R7A
//OUT1   DD UNIT=3390,DSN=SYS1.FONTNEW,DISP=SHR,VOL=SER=OS3R7A
//SYSIN  DD *
```

```
  INDD=IN1,OUTDD=OUT1,MEMBER=T1V10037,PUBLIC
  INDD=IN1,OUTDD=OUT1,MEMBER=C08400B0,PUBLIC
/*
```

*Note: If you want to mark all fonts in a particular font library "PUBLIC" you can create a new font library, copy, and mark all fonts as "PUBLIC" at the same time. The following is a sample of the JCL commands to copy and mark all fonts "PUBLIC" to a new library.*

Sample JCL to copy and mark all fonts "PUBLIC" to a new font library:

```
//APSRMARK JOB   (),
//         CLASS=A,
//         MSGCLASS=A,
//         MSGLEVEL=(1,1),
//         NOTIFY=&SYSUID,
//         TIME=1440
//*******************************************************************
//* THIS JOB WILL COPY/MOVE MEMBERS TO ALTERNATE FONT LIB AND       *
//* MARK THEM AS EITHER PUBLIC OR PRIVATE. TO MARK PUBLIC ENTER     *
//* "PUBLIC" KEYWORD ON LINE 18 INDD STATEMENT. FOR PRIVATE ENTER   *
//* "PRIVATE" KEYWORD ON LINE 18 INDD STATEMENT. THEN SUBMIT.       *
//* TO DISPLAY STATUS MARKING CHANGE RUN REPORT JOB "APSSHORT".     *
//* ****************************************************************
//* NOTE: BEFORE YOU RUN THIS JOB YOU MUST ALLOCATE NEW FONTLIB DSN *
//* 1ST CREATE NEW LIB, THEN USE IEBGENER TO COPY FROM OLD LIB      *
//* I.E. SYS1.FONTLIBB TO NEW LIB SYS1.FONTPRIV OR SYS1.FONTPUB     *
//*******************************************************************
//STEP1    EXEC  PGM=APSRMARK
//SYSPRINT DD SYSOUT=J
//*
//IN1    DD UNIT=3390,DSN=SYS1.FONTLIBB,DISP=SHR,VOL=SER=OS3R7A
//INOUT1 DD UNIT=3390,DSN=SYS1.FONTPRIV,DISP=SHR,VOL=SER=OS3R7A
//SYSIN  *
   DD INDD=IN1,OUTDD=INOUT1,PUBLIC,MEMBER=ALL
/*
```

**STEP 3. Sending the job from the host to the printer selecting the font character set you want the printer to capture**

Once you have marked the fonts "PUBLIC" you can select the font character set to be captured from either within the printer definition member in PSF or from within the in-stream JCL of the job. The following is an example of both.

To select font capture from the printer definition member, add the "CHARS" option as follows to your PSF printer member.

```
//                CHARS=(88FB)                  /* default font set */
```

To select font capture from the in-stream JCL add the "CHARS" option to sysout/output statement as follows:

```
//OUT1 OUTPUT CLASS=A,DEST=LOCAL,FORMDEF=A10110,PAGEDEF=A06462,
CHARS=88FB
```

# Configuration Options

## Overview

The configuration for the IPDS solution is stored in a XML file located on the EuroForm IPDS 100 DIMM. Extensible Markup Language (XML) is a universal format for data and has become an industrial standard today. The reason for storing the IPDS configuration in a XML document is therefore obviously.

The EuroForm IPDS 100 is provided with three options for altering the configuration of the IPDS solution on your HP LaserJet printer. The three options are:

- Front Panel
- Web Interface
- Remote

The three options offer more or less advanced approaches for configuring the IPDS solution.

## Front Panel

The Front Panel option is very simple and only offers the possibility for altering two parameters. These parameters are often used in first time set-up or while troubleshooting occurring problems with the IPDS solution. The two parameters are:

- Code Page
- Counter Update

The other parameters can only be altered via the Web interface.

## Web Interface

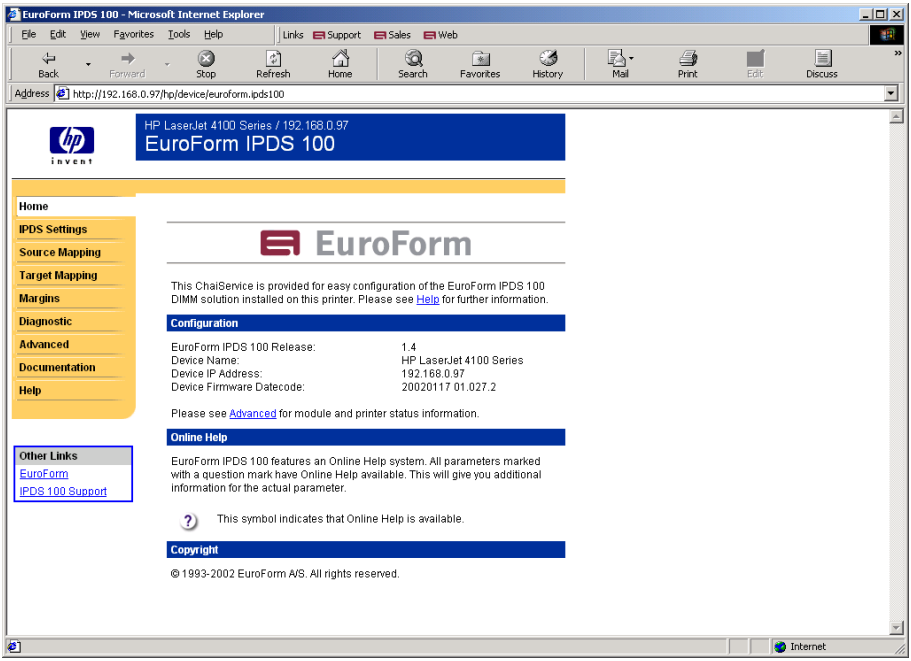
The Web interface option is more advanced and offers the possibility for altering all the parameters for the IPDS solution explained previously under “Configuration Parameters”.

The Web Interface is implemented as a ChaiService running on the printer's web server and can be accessed by typing the printers IP address in a standard web browser. Please see System Requirements in the "EuroForm IPDS 100 Getting Started Guide" for more information on compatible web browsers.

If the printers IP Address e.g. is 192.168.0.97 simply type

http://192.168.0.97/

in your browsers address bar. The button in the left menu labelled "EuroForm IPDS 100" gives access to the Web Interface Environment. After clicking on the button you will be presented with the following web page:


EuroForm IPDS 100 - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Links Support Sales Web
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Discuss
Address http://192.168.0.97/hp/device/euroform.ipds100
invent
HP LaserJet 4100 Series / 192.168.0.97
EuroForm IPDS 100
Home
IPDS Settings
Source Mapping
Target Mapping
Margins
Diagnostic
Advanced
Documentation
Help
Other Links
EuroForm
IPDS 100 Support
EuroForm
This ChaiService is provided for easy configuration of the EuroForm IPDS 100 DIMM solution installed on this printer. Please see Help for further information.
Configuration
EuroForm IPDS 100 Release: 1.4
Device Name: HP LaserJet 4100 Series
Device IP Address: 192.168.0.97
Device Firmware Datecode: 20020117 01.027.2
Please see Advanced for module and printer status information.
Online Help
EuroForm IPDS 100 features an Online Help system. All parameters marked with a question mark have Online Help available. This will give you additional information for the actual parameter.
This symbol indicates that Online Help is available.
Copyright
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Internet

This web page is Home of the Web Interface Environment. The left menu offers you access to different sub web pages where you can alter the parameters for the IPDS solution or use other functionality provided with the EuroForm IPDS 100 solution.

The parameters are grouped into the four sub web pages:

- IPDS Settings
- Source Mapping
- Target Mapping
- Margins

IPDS Settings is the IPDS emulation dependent parameters whereas Source Mapping, Target Mapping and Margins are printer specific settings for the IPDS solution.

The Web Interface Environment provides an Online Help system. All parameters marked with a question mark have Online Help available. This will give you additional information about the actual parameter.

### Home

Home is the opening web page when you access the Web Interface Environment. It provides you with actual status information for the IPDS solution and some additional information about the Web Interface Environment.

The status information is frequently used in support issues and can therefore easily be found on the opening web page.

### IPDS Settings

This web page gives you the possibility to alter the default configuration for the IPDS emulation.

Please refer to the Online Help or the previous chapter about Configuration Parameters for help.

### Source Mapping

This web page gives the possibility to add, edit or delete Source Mapping to the IPDS configuration.

Please refer to the Online Help or the previous chapter about Configuration Parameters for help.

### Target Mapping

This web page gives the possibility to add, edit or delete Target Mapping to the IPDS configuration.

Please refer to the Online Help or the previous chapter about Configuration Parameters for help.

### Margins

This web page gives the possibility to add, edit or delete Tray Margins to the IPDS configuration. Default margins for all trays will always appear and cannot be deleted. If you add specific Tray Margins this will overrule the default margins.

Please refer to the Online Help or the previous chapter about Configuration Parameters for help.

### Diagnostic

The Web Interface Environment provides the possibility for advanced diagnostic used in support issues. The Diagnostic web page contains the access to this tool.

The Diagnostic Tool is a Java Swing component that offers more advanced technologies than regular web interfaces can provide. Opening the Diagnostic Tool will start a Java Session on your client and transfer a little program to your computer. You will have to accept this transfer before it is done. EuroForm is authorized through VeriSign for providing such Java Swing component.

Please refer to the section “Diagnostic Tool” for more information.

### Advanced

This web page contains module version information for the specific modules installed with the EuroForm IPDS 100 solution. The solution consists of several modules and in support issues it is important to be able to verify version for all modules.

Furthermore, here you can reset the actual IPDS configuration to the factory default settings as well as remove all captured fonts stored on the printer hard disk. The factory default settings should be able to run in any IPDS environment with minimum features and is thereby a good starting point if nothing is working and you have to start all over.

### Documentation

This web page contains access to documentation such as the EuroForm IPDS 100 User Guide.

### Help

This web page contains additional information and help for the EuroForm IPDS 100 DIMM.

## Remote

The Remote option is an advanced functionality for updating the XML document containing the IPDS configuration and should be used with the outmost caution.

The Remote option is not an interface like the Front Panel or the Web Interface but functionality implemented in the IPDS solution. There are two ways for Remote Update of the IPDS configuration, e-mail and PJL-job transfer.

E-mail is ideal for updating several IPDS printers in a network with the same IPDS configuration. This option requires your IPDS printers to be configured with POP3 and SMTP accounts on your mail server. For more information on how to set up your hp LaserJet printer to receive and send e-mails, please see the document 'HP embedded web server for HP LaserJet printers', which can be founded on

http://www.hp.com/cposupport/

PJL-job transfer can be done with a simple command tool and ideal for remote update of a single printer.

Both options require a local copy of the IPDS configuration file.

### Download of the IPDS configuration file

The XML document containing the IPDS configuration can be retrieved from the EuroForm IPDS 100 DIMM either by using the HP Printer Disk Manager (HPPDM) or by browsing the following URL:

http://<IP-address>/hp/device/euroform/ipds100/xml/ipds100.xml

When browsing, the XML document will be parsed and displayed. To obtain it as file format choose File menu and save it as XML document to your local file system.

*Note: The XML document contain the IPDS configuration in a specific EuroForm notation and should not be altered by any without advanced knowledge to the EuroForm IPDS 100 DIMM solution.*

After obtaining the file you can now transfer it by either e-mail or PJL-job transfer.

### E-mail

The right way to remotely update more printers with one XML document template is to use the Web Interface to create the XML document on one printer and then download this XML document to your local drive, see previous section.

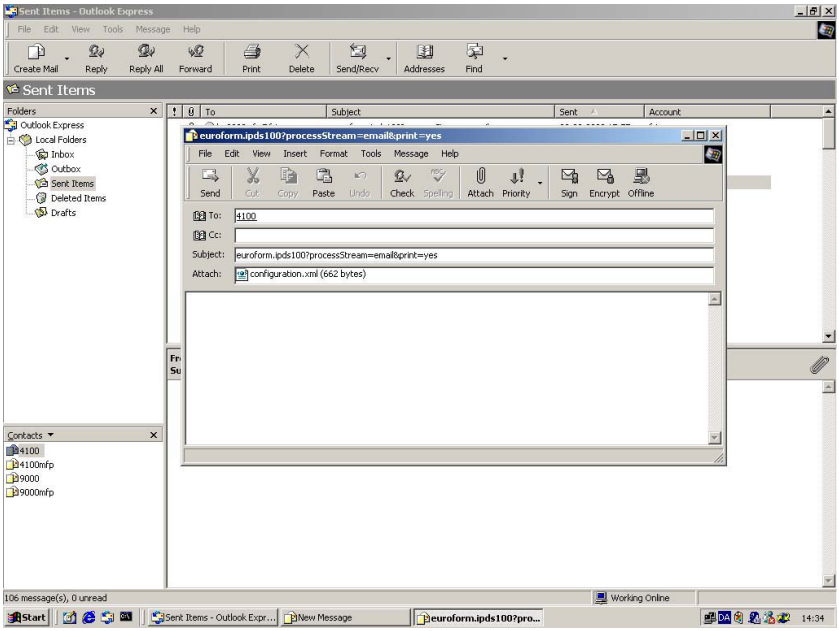
You can now open your e-mail client and attach the downloaded XML document to a new e-mail. In the subject you write:

euroform.ipds100?processStream=email&print=no

or

euroform.ipds100?processStream=email&print=yes

The argument “print=yes” will cause the Remote Environment to print a confirmation page on all printers updated with the new XML document. The following is an example for an e-mail sent from Outlook Express:




When you send the e-mail to one or more recipients (printers) the Remote Environment will receive the e-mail and write the XML document to the EuroForm IPDS 100 DIMM and the IPDS configuration will be updated.

### PJL-job

The PJL-job configuration update option only requires you to have some way to copy the PJL job to the printer. We recommend that you use EuroForm IPCopy (available from http://www.euroform.com/ipds100).

This update option only allows you to update one printer at a time. To update multiple printers, see the e-mail update option.

To remotely configure the IPDS 100 solution through a PJL-job the used PJL-job has to follow the template show below.

In the template below the tags “[ESC]” should be replaced by an actual escape character. (ASCII character 27)

Remote IPDS 100 configuration PJL-Job template

```
[ESC]%-12345X@PJL JOB NAME="IPDS 100 CONFIGURATION UPDATE"
@PJL ENTER LANGUAGE=IPDS100_CONFIG

 [Here the configuration XML-file should be inserted]

[ESC]%-12345X@PJL EOJ NAME="IPDS 100 CONFIGURATION UPDATE"
[ESC]%-12345X
```

Below is shown an example of a PJL-job.

Example IPDS 100 configuration PJL-Job

```
[ESC]%-12345X@PJL JOB NAME="IPDS 100 CONFIGURATION UPDATE"
@PJL ENTER LANGUAGE=IPDS100_CONFIG
<?xml version="1.0"?>
<CONFIGURATION>
   <AREA>1</AREA>
   <BLANK>1</BLANK>
   <CODEPAGE>
      <DEFAULT>1148</DEFAULT>
      <VERSION>2</VERSION>
   </CODEPAGE>
   <COUNTER_UPDATE>1</COUNTER_UPDATE>
   <DUPLEX>1</DUPLEX>
   <EMULATION>2</EMULATION>
   <FILTER>4</FILTER>
   <FONT>
      <ID>11</ID>
      <SIZE>1000</SIZE>
   <SUBST>3</SUBST>
   </FONT>
   <MAPPINGS>
      <SOURCES>
      </SOURCES>
      <TARGETS>
      </TARGETS>
   </MAPPINGS>
   <MARGINS>
```

```
      <MARGIN>
         <TRAYID>100</TRAYID>
         <FRONT>
            <TOP>0</TOP>
            <LEFT>0</LEFT>
         </FRONT>
         <BACK>
            <TOP>0</TOP>
            <LEFT>0</LEFT>
         </BACK>
      </MARGIN>
   </MARGINS>
   <RESOLUTION>4</RESOLUTION>
</CONFIGURATION>
[ESC]%-12345X@PJL EOJ NAME="IPDS 100 CONFIGURATION UPDATE"
[ESC]%-12345X
```

To copy the PJL-job to the printer via EuroForm IPCopy you do the following:

1. Get the IPCopy utility tool from the EuroForm Web site.
2. Open a DOS Window
3. Copy the PJL-job to the printer (IPCopy [PJL-job file] IP:[Printer IP])

Example IPCopy command

```
C:\IPCopy c:\IPDS100Configuration.prn IP:192.168.0.97
```

When the printer receives the PJL-job it writes the XML document to the EuroForm IPDS 100 DIMM and the IPDS configuration is updated.

# Diagnostic Tool

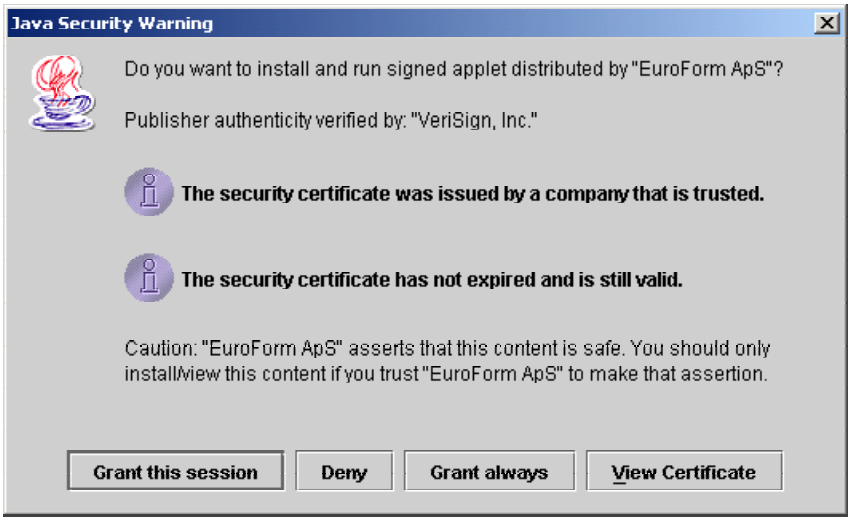
## Requirements

The following is required to be able to run the IPDS 100 Debug Tracer:

- Java Plug-In 1.4.
- Microsoft Internet Explorer 5.0 or later.

## IPDS 100 Debug Tracer Windows

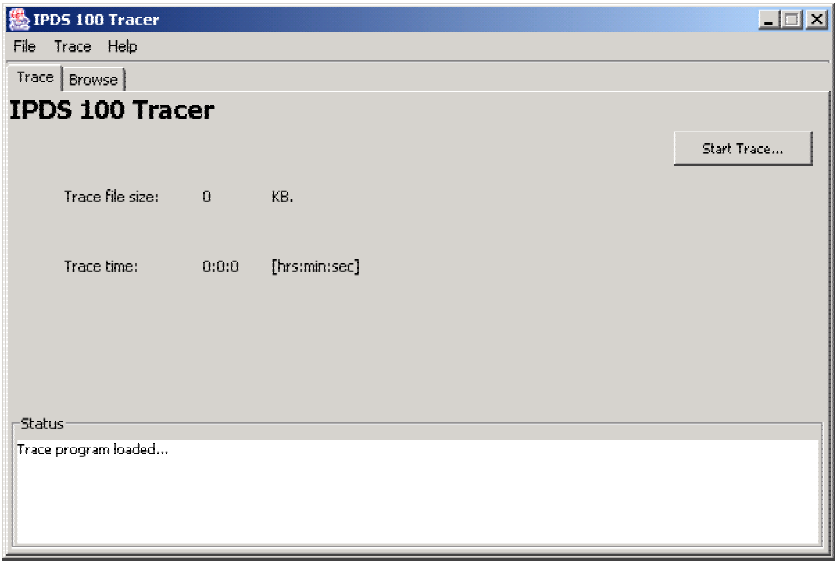
When the IPDS 100 trace tool is started the following screen will appear:


Java Security Warning
Do you want to install and run signed applet distributed by "EuroForm ApS"?
Publisher authenticity verified by: "VeriSign, Inc."
The security certificate was issued by a company that is trusted.
The security certificate has not expired and is still valid.
Caution: "EuroForm ApS" asserts that this content is safe. You should only install/view this content if you trust "EuroForm ApS" to make that assertion.
Grant this session
Deny
Grant always
View Certificate

This screen appears because the debug tool is contained in a signed jar file. In order to get the tracer to work you'll need to grant the applet access to perform certain operations on your local workstation. These operations include writing to the local file system, which is normally not allowed for Java applets.

The only thing that the tracer applet will write to your local file system is a file containing the configurations files, and the trace file containing the traced data. This file will be written on you local disk in a directory you choose.

Hereafter the main trace window will appear:




The main tracer window contains the following elements:

**Status area:**

The status area will show the current status of the IPDS 100 Tracer. It will also be used to display error messages if an error should occur.

**Trace file size:**

This field will show the current size of the traced data.

**Trace time:**

The field will show the time the trace has been active.

**Start Trace:**

Clicking on this button will start the tracer. You will be prompted for a trace file name and location, and then the trace will start.

**Browse:**

This tab takes you to the browse window, which will allow you to view the different configuration files.

## How To Trace

The following will explain how to trace IPDS data from the IPDS 100 solution. You should only trace on a printer that has just been rebooted. If you are trying to trace on a printer that has been printing, the trace tool might not be able to trace. This can be caused by an AS/400 that has not closed the connection to the printer.

1. Using you browser (preferably Microsoft IE 5.5 or higher) browse to the printer web page, by typing in the printer's IP-address in the address bar. (e.g. http://192.168.0.97/)
2. On this page select the "EuroForm IPDS 100" button on the left menu panel. This will take you to the IPDS 100 Web Configuration Tool.
3. On this page select the "Diagnostic" button in the left menu panel, which will open up a page containing a short description of the trace tool. In the bottom of the page there's a link that actually starts the trace tool.
4. If you don't have Sun's Java Plug-In installed on you workstation, you will be prompted to install it. Continue through this installation following the instructions on the screen.
5. The IPDS 100 Debug Tracer will open in its own window and a Java Applet will start up on your computer. You will have to accept to run the Java Applet allowing it to gain access to your HDD. EuroForm is certified through VeriSign Inc., a well-respected certification institute. On the security warning screen select either "Grant this session" or "Grant always".
6. When you have granted the applet the appropriate access rights, you will see the IPDS 100 Debug Tracer main window and you are ready to start tracing.
7. To start the actual tracing click the "Start Trace" button. Next select where you want the trace file to be stored.
8. When you have selected the destination of the file, the tracer starts tracing incoming data. Now you should send the print job to the printer.

*Note: The result of a trace is a zip-file containing all IPDS 100 configuration files and the trace data file.*

9. Wait until the print job has completed before stopping the tracer. During the tracing process you will see the amount of received data increase. (Up to about 200KB of data has to be sent before this counter is updated though).
10. After you have stopped the trace, please forward the zip file to us at support@euroform.com

# PSF/MVS AFP printing using TCP/IP

This chapter provides information on how to create MVS definitions for printing from PSF/MVS via TCP/IP. The following topics are addressed:

JES printer statements

PSF start-up procedure

Once these parameters have been configured, and the basic TCP/IP installation of the hp LaserJet printer with the EuroForm IPDS 100 has been completed, direct AFP/IPDS printing from PSF/MVS will be possible.

Requirements:

- PSF/MVS version 2 Release 2.0 with APAR OW15599.
- MVS Scheduler APAR OW12236 that supports the PRINTDEV IPADDR and PORTNO keywords.
- IBM TCP/IP Version 3 Release 1, or higher, installed and configured on MVS. Co-requisite supported TCP/IP controller is also required (e.g. IBM 3172).

MTU size:

- The Maximum Transmission Unit (MTU) of the IP packet for the MVS system is recommended to be set up to 2000.

*Note: The MTU size should not exceed the maximum size sent through the control unit. Failure may lead to transmission problems.*

## PSF/MVS direct attachment

Sample PSF/MVS JES2 initialisation statements:

```
FSSDEF(FSS1)PROC=PSF4, HASPFSSM=HASPFSSM
```

Example of PSF/MVS JES2 printer definition:

```
PRT420      FSS=FSS1,MODE=FSS,PRMODE=(LINE,PAGE),
            CLASS=A,UCS=0,SEP,NOSEPDS,CKPTPAGE=100,DRAIN,WS=(R,Q/FCB)
```

PSF/MVS start-up procedure:

```
//PSF4 PROC
//STEP01 EXEC PGM=APSPPIEP,REGION=1750K
//JOBHDR OUTPUT PAGEDEF=V06483,          /* JOB SEPARATOR PAGEDEF   */
// FORMDEF=A10110,CHARS=GT15             /* JOB SEPARATOR FORMDEF   */
//JOBTLR OUTPUT PAGEDEF=V06483,          /* JOB SEPARATOR PAGEDEF   */
// FORMDEF=A10110,CHARS=GT15             /* JOB SEPARATOR FORMDEF   */
//DSHDR OUTPUT PAGEDEF=V06483,           /* DS SEPARATOR PAGEDEF    */
// FORMDEF=A10120,CHARS=GT15             /* DS SEPARATOR FORMDEF    */
//MSGDS OUTPUT PAGEDEF=A06462,           /* MESSAGE DATASET PAGEDEF */
// FORMDEF=A10110                        /* MESSAGE DATASET FORMDEF */
//*********************************************************************
//*
//* THIS PROC. IS TO BE USED FOR 300 DPI DEVICES
//*                          -----------
//*********************************************************************
//FONT01 DD DSN=SYS1.FONTLIBBB,DISP=SHR  /* FONTS - 300 DPI         */
// DD DSN=SYS1.FONT300,DISP=SHR          /* SYSTEM FONTS - 300 DPI  */
//*--------------------------------------------------------------------
//PSEG01 DD DSN=SYS1.PSEGLIB,DISP=SHR    /* SYSTEM PAGE SEGMENTS    */
//*--------------------------------------------------------------------
//OLAY01 DD DSN=SYS1.OVERLIB,DISP=SHR    /* SYSTEM MEDIUM OVERLAYS  */
//*--------------------------------------------------------------------
//PDEF01 DD DSN=SYS2.PDEFLIB,DISP=SHR    /* SYSTEM PAGEDEFS         */
// DD DSN=SYS1.PDEFLIB,DISP=SHR          /* SYSTEM PAGEDEFS         */
//*--------------------------------------------------------------------
//FDEF01 DD DSN=SYS2.FDEFLIB,DISP=SHR    /* SYSTEM FORMDEFS         */
// DD DSN=SYS1.FDEFLIB,DISP=SHR          /* SYSTEM FORMDEFS         */
//*********************************************************************
//* STANDARD PRINTDEV                                                 */
//*********************************************************************
//PRT420 CNTL
//PRT420 PRINTDEV FONTDD=*.FONT01,   /* FONT LIBRARY DD              */
// OVLYDD=*.OLAY01,                  /* OVERLAY LIBRARY DD           */
// PSEGDD=*.PSEG01,                  /* SEGMENT LIBRARY DD           */
// PDEFDD=*.PDEF01,                  /* PAGEDEF LIBRARY DD           */
// FDEFDD=*.FDEF01,                  /* FORMDEF LIBRARY DD           */
// JOBHDR=*.JOBHDR,                  /* JOB HEADER SEPARATOR OUTPUT  */
// JOBTRLR=*.JOBTLR,                 /* JOB TRAILER SEPARATOR OUTPUT*/
// DSHDR=*.DSHDR,                    /* DATA SET HEADER SEPERATOR    */
// MESSAGE=*.MSGDS,                  /* MESSAGE DATA SET OUTPUT      */
// PAGEDEF=A06462,                   /* DEVICE PAGEDEF DEFAULT       */
// FORMDEF=A10110,                   /* DEVICE FORMDEF DEFAULT       */
// CHARS=(GT10,                      /* DEVICE                       */
```

```
// GT12,GT15,GT10),                    /* DEFAULT FONT SET            */
// PIMSG=YES,                          /* ACCUMULATE DATA SET MESSAGES*/
// DATACK=BLOCK,                       /* REPORT ALL DATA-CHECK ERRORS*/
// TRACE=NO,                           /* CREATE INTERNAL TRACE       */
// FAILURE=WCONNECT,                   /* ACTION ON PRINTER FAILURE   */
// TIMEOUT=REDRIVE,                    /* PSF ACTION ON TIMEOUT       */
// DISCINTV=30,                        /* DISCONNECT INTERVAL IN SECS.*/
// MGMTMODE=IMMED,                     /* ACTIVATE PRINTER AT STARTUP */
// IPADDR='192.168.0.97'               /* IP ADDRESS                  */
// PORTNO=9100                         /* PORT NUMBER                 */
//PRT420 ENDCNTL
```

***Using IP address 192.168.0.97 and port number 9100***

The IP address of the device should be programmed in the IPADDR statement. The PORTNO 9100 is the IPDS port number of the hp JetDirect Card.

# PSF/400 AFP printing using TCP/IP

This chapter provides configuration guidelines for OS/400 using TCP/IP. The versions differ somewhat in the set-up.

For the different OS/400 versions, use the cross-references below:

**AS/400 settings for version 3.1**
**AS/400 settings for version 3.2**
**AS/400 settings for version 3.6**
**AS/400 settings for version 3.7**
**AS/400 settings for version 4.1**
**AS/400 settings for version 4.2**
**AS/400 settings for version 4.3**
**AS/400 settings for version 4.4, 4.5 and 5.1**

Before IPDS printing using TCP/IP can be accomplished, the following points need to be checked:

- TCP/IP is installed and enabled
- The relevant PTFs are applied
- The WRKAFP2 command is compiled (for AS/400 3.1 and 3.6 only)

Details on how to verify these items can be found on the Internet. Consult the following IBM web address for details:

http://as400service.rochester.ibm.com/

In the Technical Information Database, you find the following links:

- The **AS/400 Knowledge Base** link directs you to the area of the Knowledge Base, which is specifically about **Print**. IBM Doc. No. 8414724, *PTF Listing for AFP Printing* is a good entry.
- The **Preventive Service Planning (PSP)** link directs you to the area of the Knowledge Base about **Cumulative PTF Package** for all OS/400 versions. IBM Doc. No. 8203740, *PTF Listing for TCP/LAN Printing* is a good entry.

*Note: The IPDS port for the hp JetDirect Card is port 9100.*

## AS/400 settings for version 3.1

To configure IPDS printing on OS/400 V3R1, you must use two commands:

- CRTDEVPRT
- WRKAFP2

### Configuring PSF with CRTDEVPRT on V3R1

*Note: Where the text says <DEVICE NAME>, you should write the name that you want to assign to your specific hp LaserJet printer with the EuroForm IPDS 100 DIMM.*

On V3R1, on the AS/400 command line, enter a command in the form:

```
CRTDEVPRT DEVD(<DEVICE NAME>) DEVCLS(*RMT) TYPE(*IPDS) MODEL(0)
AFP(*YES) AFPATTACH(*APPC) FONT(11) RMTLOCNAME(TCPIP)
FORMFEED(*AUTOCUT) TEXT('EUROFORM IPDS 100')
```

A completed screen looks like the following example:

```
Display Device Description Page 1
5763SS1 V3R1M0 940909 BLDSYS1 04/04/02 12:55:08

Device description . . . . . : DEVD         <DEVICE NAME>
Option . . . . . : OPTION       *ALL
Category of device . . . . . :              *PRT
Automatically created . . . . .:            NO
Device class . . . . . : DEVCLS       *RMT
Device type . . . . . .: TYPE         *IPDS
Device model . . . . . : MODEL        0
Advanced function printing . . . : AFP          *YES
AFP attachment . . . . . : AFPATTACH    *APPC
Online at IPL . . . . . .: ONLINE       *YES
Font . . . . . : FONT
Identifier . . . . . :              011
Point size . . . . . :              *NONE
Form feed . . . . . .: FORMFEED     *AUTOCUT
Separator drawer . . . . . : SEPDRAWER    *FILE
Separator program . . . . . .: SEPPGM       *NONE
Library. . . . . :
Printer error message . . . . . .: PRTERRMSG    *INQ
Message queue (V3R1) . . . . . : MSGQ         QSYSOPR
Shadowing message queue (V3R6) . : MSGQ         QSYSOPR
Library. . . . . :              *LIBL
Maximum pending requests . . . . : MAXPNDRQS    6
Print while converting . . . . . : PRTCVT       *YES
Print request timer . . . . . .: PRTRQSTMR    *NOMAX
Form definition . . . . . .: FORMDF       F1C10110
Library. . . . . :              *LIBL
Character identifier . . . . . : CHRID        *SYSVAL
Remote location . . . . . .: RMTLOCNAME   TCPIP
Local location . . . . . : LCLLOCNAME   *NETATR
Remote network identifier . . . .: RMTNETID     *NETATR
Mode . . . . . : MODE         QSPWTR
Text . . . . . : TEXT         EUROFORM IPDS 100
```

### Configuring AFP with WRKAFP2 on V3R1

On V3R1, on the AS/400 command line, enter a command in the form:

```
WRKAFP2 DEVD(<DEVICE NAME>) IPDSPASTHR(*YES) TCPIP(*YES)
RMTSYS('192.168.0.97') PORT(9100) INACTTMR(*SEC15)
```

A printout should look like the following:

```
QPQXWAFP
--------
DEVD         <DEVICE NAME>
IPDSPASTHR   *YES
TCPIP        *YES
RMTSYS       192.168.0.97
PORT         9100
ACTTMR       *NOMAX
INACTTMR     *SEC15
SBP          *NO
PSC          *YES
DRF          *NO
DRR          *NO
EDGSNSTV     *NO
```

Then do the following:

Ping the IP address to verify communication with the printer:

```
PING '192.168.0.97'
```

Vary the printer on:

```
VRYCFG <DEVICE NAME> CFGTYPE(*DEV) STATUS(*ON)
```

Start the print writer:

```
STRPRTWTR <DEVICE NAME>
```

## AS/400 settings for version 3.2

To configure IPDS on OS/400 V3R2, you use the following commands:

- CRTDEVPRT
- CRTPSFCFG

### Configuring PSF with CRTDEVPRT on V3R2

*Note: Where the text says <DEVICE NAME>, you should write the name that you want to assign to your specific hp LaserJet printer with the EuroForm IPDS 100 DIMM..*

On the AS/400 command line, enter a command in the form:

```
CRTDEVPRT DEVD(<DEVICE NAME>) DEVCLS(*RMT) TYPE(*IPDS) MODEL(0)
AFP(*YES) AFPATTACH(*APPC) FONT(11) RMTLOCNAME(TCPIP)
FORMFEED(*AUTOCUT) TEXT('EUROFORM IPDS 100')
```

A completed screen looks like this:

```
Display Device Description Page 1
Device description . . . . . : DEVD          <DEVICE NAME>
Option . . . . . : OPTION        *ALL
Category of device . . . . . :               *PRT
Automatically created. . . . . : NO
Device class . . . . . : DEVCLS        *RMT
Device type. . . . . : TYPE          *IPDS
Device model . . . . . : MODEL         0
Advanced function printing . . . . : AFP           *YES
AFP attachment . . . . . : AFPATTACH     *APPC
Online at IPL. . . . . : ONLINE      *YES
Font . . . . . : FONT
Identifier . . . . . :               011
Point size . . . . . :               *NONE
Form feed. . . . . : FORMFEED     *AUTOCUT
Separator drawer . . . . . : SEPDRAWER    *FILE
Separator program . . . . . : SEPPGM      *NONE
Library . . . . . :
Printer error message . . . . . : PRTERRMSG    *INQ
Message queue . . . . . : MSGQ          QSYSOPR
Library. . . . . :               *LIBL
Maximum pending requests . . . . . : MAXPNDRQS    6
Print while converting . . . . . : PRTCVT       *YES
Print request timer. . . . . : PRTRQSTMR    *NOMAX
Form definition. . . . . : FORMDF       F1C10110
Library. . . . . :               *LIBL
Character identifier . . . . . : CHRID        *SYSVAL
Remote location. . . . . : RMTLOCNAME   TCPIP
Local location . . . . . : LCLLOCNAME   *NETATR
Remote network identifier. . . . . : RMTNETID     *NETATR
Mode . . . . . : MODE         QSPWTR
Dependent location name. . . . . : DEPLOCNAME   *NONE
Text . . . . . : TEXT         EUROFORM IPDS 100
```

### Configuring AFP with CRTPSFCFG on V3R2

On the AS/400 command line, enter a command in the form:

```
CRTPSFCFG PSFCFG(<DEVICE NAME>) IPDSPASTHR(*YES) RLSTMR(*SEC15)
TEXT(EUROFORM IPDS 100) RMTLOCNAME('192.168.0.97) PORT(9100)
```

A completed screen looks like this:

```
PSF configuration . . . . . : <DEVICE NAME>
Library . . . . . : QGPL
User resource library . . . . . : *JOBLIBL
IPDS pass through . . . . . : *YES
Activate release timer . . . . . : *NORDYF
Release timer . . . . . : *SEC15
Restart timer . . . . . : *IMMED
SNA retry count . . . . . : 2
Delay time between retries. . . . . : 0
Blank page. . . . . : *YES
Page size control . . . . . : *YES
Resident fonts. . . . . : *YES
Resource retention. . . . . : *YES
Edge orient . . . . . : *NO
Remote location . . . . . :
Name or address . . . . . : 192.168.0.97
TCP/IP port . . . . . : 9100
TCP/IP activation timer . . . . . : 170
PSF defined options . . . . . : *NONE
Text description. . . . . : EUROFORM IPDS 100
Device resource library list. . . . . : *DFT
```

Then do the following:

Ping the IP address to verify communication with the printer:

```
PING '192.168.0.97'
```

Vary the printer on:

```
VRYCFG <DEVICE NAME> CFGTYPE(*DEV) STATUS(*ON)
```

Start the print writer:

```
STRPRTWTR <DEVICE NAME>
```

## AS/400 settings for version 3.6

To configure IPDS printing on OS/400 V3R6, you must use two commands:

- CRTDEVPRT
- WRKAFP2

### Configuring PSF with CRTDEVPRT on V3R6

*Note: Where the text says <DEVICE NAME>, you should write the name that you want to assign to your specific hp LaserJet printer with the EuroForm IPDS 100 DIMM.*

On V3R6, at the AS/400 command line, enter a command in the form:

```
CRTDEVPRT DEVD(<DEVICE NAME>) DEVCLS(*RMT) TYPE(*IPDS) MODEL(0)
AFP(*YES) AFPATTACH(*APPC) FONT(11) RMTLOCNAME(TCPIP)
FORMFEED(*AUTOCUT) TEXT('EUROFORM IPDS 100')
```

A completed screen looks like the following example:

```
Display Device Description Page 1
5763SS1 V3R6M0 940909 BLDSYS1 04/04/02 10:05:20
Device description . . . . . : DEVD        <DEVICE NAME>
Option . . . . . : OPTION      *ALL
Category of device . . . . . :             *PRT
Automatically created . . . . . : NO
Device class . . . . . : DEVCLS      *RMT
Device type . . . . . : TYPE        *IPDS
Device model . . . . . : MODEL       0
Advanced function printing . . . : AFP         *YES
AFP attachment . . . . . : AFPATTACH   *APPC
Online at IPL . . . . . : ONLINE      *YES
Font . . . . . : FONT
Identifier . . . . . :              011
Point size . . . . . :             *NONE
Form feed . . . . . : FORMFEED    *AUTOCUT
Separator drawer . . . . . : SEPDRAWER   *FILE
Separator program . . . . . : SEPPGM      *NONE
Library. . . . . :
Printer error message. . . . . : PRTERRMSG   *INQ
Message queue (V3R1) . . . . . : MSGQ        QSYSOPR
Shadowing message queue (V3R6) . : MSGQ        QSYSOPR
Library. . . . . :             *LIBL
Maximum pending requests . . . . : MAXPNDRQS   6
Print while converting . . . . . : PRTCVT     *YES
Print request timer . . . . . : PRTRQSTMR   *NOMAX
Form definition . . . . . : FORMDF      F1C10110
Library. . . . . :             *LIBL
Character identifier . . . . . : CHRID       *SYSVAL
Remote location . . . . . : RMTLOCNAME  TCPIP
Local location . . . . . : LCLLOCNAME  *NETATR
Remote network identifier . . . . : RMTNETID    *NETATR
Mode . . . . . : MODE        QSPWTR
Text . . . . . : TEXT        EUROFORM IPDS 100
```

### Configuring AFP with WRKAFP2 on V3R6

On V3R1, on the AS/400 command line, enter a command in the form:

```
WRKAFP2 DEVD(<DEVICE NAME>) IPDSPASTHR(*YES) TCPIP(*YES)
RMTSYS('192.168.0.97') PORT(9100) INACTTMR(*SEC15)
```

A printout should look like the following:

```
QPQXWAFP
--------
DEVD         <DEVICE NAME>
IPDSPASTHR   *YES
TCPIP        *YES
RMTSYS       192.168.0.97
PORT         9100
ACTTMR       *NOMAX
INACTTMR     *SEC15
SBP          *NO
PSC          *YES
DRF          *NO
DRR          *NO
EDGSNSTV     *NO
```

Then do the following:

Ping the IP address to verify communication with the printer:

```
PING '192.168.0.97'
```

Vary the printer on:

```
VRYCFG <DEVICE NAME> CFGTYPE(*DEV) STATUS(*ON)
```

Start the print writer:

```
STRPRTWTR <DEVICE NAME>
```

## AS/400 settings for version 3.7

To configure IPDS printing on OS/400 V3R7, you must use two commands:

- CRTDEVPRT
- CRTPSFCFG

### Configuring PSF with CRTDEVPRT on V3R7

*Note: Where the text says <DEVICE NAME>, you should write the name that you want to assign to your specific hp LaserJet printer with the EuroForm IPDS 100 DIMM.*

At the AS/400 command line, enter a command in the form:

```
CRTDEVPRT DEVD(<DEVICE NAME>) DEVCLS(*LAN) TYPE(*IPDS) MODEL(0)
LANATTACH(*IP) AFP(*YES) PORT(9100) FONT(11) FORMFEED(*AUTOCUT)
RMTLOCNAME('192.168.0.97) USRDFNOBJ(AFP/NETWRKPRT *PSFCFG)
TEXT('EUROFORM IPDS 100')
```

A completed screen looks like this:

```
Display Device Description Page 1
5716SS1 V3R7M0 961108 BLDRB1 04/04/02 11:02:51
Device description . . . . . : DEVD        <DEVICE NAME>
Option . . . . . : OPTION      *ALL
Category of device . . . . . :             *PRT
Device class . . . . . : DEVCLS      *LAN
Device type. . . . . : TYPE        *IPDS
Device model . . . . . : MODEL       0
LAN attachment . . . . . : LANATTACH   *IP
User-defined object. . . . . : USRDFNOBJ   NETWRKPRT
Library. . . . . : AFP
Object type. . . . . :             *PSFCFG
Data transform program . . . . . : USRDTATFM   *NONE
User-defined driver program . . . .: USRDRVPGM   *NONE
Advanced function printing . . . . : AFP         *YES
Port number. . . . . : PORT        9100
Online at IPL. . . . . : ONLINE      *YES
Font . . . . . : FONT
Identifier . . . . . :             011
Point size . . . . . :             *NONE
Form feed. . . . . : FORMFEED    *AUTOCUT
Separator drawer . . . . . : SEPDRAWER   *FILE
Separator program. . . . . : SEPPGM      *NONE
Library. . . . . :
Printer error message. . . . . : PRTERRMSG   *INQ
Message queue. . . . . : MSGQ        QSYSOPR
Library. . . . . :             *LIBL
Activation timer . . . . . : ACTTMR      170
Maximum pending requests . . . . . : MAXPNDRQS   6
Print while converting . . . . . : PRTCVT      *YES
Print request timer. . . . . : PRTRQSTMR   *NOMAX
Form definition. . . . . : FORMDF      F1C10110
Library. . . . . :             *LIBL
Remote location. . . . . : RMTLOCNAME
Name or address. . . . . :             '192.168.0.97'
Dependent location name. . . . . : DEPLOCNAME  *NONE
Text . . . . . : TEXT        EUROFORM IPDS 100
User-defined options . . . . . : USRDFNOPT
```

### To configure AS/400 for IPDS printing on V3R7

On the AS/400 command line, enter a command in the form:

```
CRTPSFCFG PSFCFG(AFP/NETWRKPRT) IPDSPASTHR(*YES) RLSTMR(*SEC15)
TEXT('EUROFORM IPDS 100')
```

A completed screen looks like this:

```
PSF Configuration Information Page 1
PSF configuration. . . . . . . . . . . . : NETWRKPRT
Library. . . . . . . . . . . . . . . . . : AFP
User resource library. . . . . . . . . . : *JOBLIBL
IPDS pass through. . . . . . . . . . . . : *YES
Activate release timer . . . . . . . . . : *NORDYF
Release timer. . . . . . . . . . . . . . : *SEC15
Restart timer. . . . . . . . . . . . . . : *IMMED
SNA retry count. . . . . . . . . . . . . : 2
Delay time between retries . . . . . . . : 0
Blank page . . . . . . . . . . . . . . . : *YES
Page size control. . . . . . . . . . . . : *YES
Resident fonts . . . . . . . . . . . . . : *YES
Resource retention . . . . . . . . . . . : *YES
Edge orient. . . . . . . . . . . . . . . : *NO
Remote location. . . . . . . . . . . . . :
Name or address. . . . . . . . . . . . . : *NONE
TCP/IP port. . . . . . . . . . . . . . . : *NONE
TCP/IP activation timer. . . . . . . . . : 170
PSF defined options. . . . . . . . . . . : *NONE
Text description . . . . . . . . . . . . : EUROFORM IPDS 100
Device resource library list . . . . . . : *DFT
```

Then do the following:

Ping the IP address to verify communication with the printer:

```
PING '192.168.0.97'
```

Vary the printer on:

```
VRYCFG <DEVICE NAME> CFGTYPE(*DEV) STATUS(*ON)
```

Start the print writer:

```
STRPRTWTR <DEVICE NAME>
```

## AS/400 settings for version 4.1

To configure IPDS printing on OS/400 V4R1, you must use two commands:

- CRTDEVPRT
- CRTPSFCFG

### Configuring PSF with CRTDEVPRT on V4R1

*Note: Where the text says <DEVICE NAME>, you should write the name that you want to assign to your specific hp LaserJet printer with the EuroForm IPDS 100 DIMM.*

On the AS/400 command line, enter a command in the form:

```
CRTDEVPRT DEVD(<DEVICE NAME>) DEVCLS(*LAN) TYPE(*IPDS) MODEL(0)
LANATTACH(*IP) AFP(*YES) PORT(9100) FONT(11) FORMFEED(*AUTOCUT)
RMTLOCNAME('192.168.0.97) USRDFNOBJ(AFP/NETWRKPRT *PSFCFG)
TEXT('EUROFORM IPDS 100')
```

A completed screen looks like this:

```
Display Device Description Page 1
5716SS1 V4R1M0 971108 BLDRB1 04/04/02 12:12:34
Device description . . . . . : DEVD        <DEVICE NAME>
Option . . . . . : OPTION      *ALL
Category of device . . . . . :             *PRT
Device class . . . . . : DEVCLS      *LAN
Device type. . . . . : TYPE        *IPDS
Device model . . . . . : MODEL       0
LAN attachment . . . . . : LANATTACH   *IP
User-defined object. . . . . : USRDFNOBJ   NETWRKPRT
Library. . . . . : AFP
Object type. . . . . :             *PSFCFG
Data transform program . . . . . : USRDTATFM   *NONE
User-defined driver program . . . .: USRDRVPGM   *NONE
Advanced function printing . . . . : AFP         *YES
Port number. . . . . : PORT        9100
Online at IPL. . . . . : ONLINE      *YES
Font . . . . . :
FONT Identifier . . . . . :             011
Point size . . . . . :             *NONE
Form feed. . . . . : FORMFEED    *AUTOCUT
Separator drawer . . . . . : SEPDRAWER   *FILE
Separator program. . . . . : SEPPGM      *NONE
Library. . . . . :
Printer error message. . . . . : PRTERRMSG   *INQ
Message queue. . . . . : MSGQ        QSYSOPR
Library. . . . . :             *LIBL
Activation timer . . . . . : ACTTMR      170
Maximum pending requests . . . . . : MAXPNDRQS   6
Print while converting . . . . . : PRTCVT      *YES
Print request timer. . . . . : PRTRQSTMR   *NOMAX
Form definition. . . . . : FORMDF      F1C10110
Library. . . . . :             *LIBL
Remote location. . . . . : RMTLOCNAME
Name or address. . . . . :             '192.168.0.97'
Dependent location name. . . . . : DEPLOCNAME  *NONE
Text . . . . . : TEXT        EUROFORM IPDS 100
User-defined options . . . . . : USRDFNOPT
```

### To configure AS/400 for IPDS printing on V4R1

On the AS/400 command line, enter a command in the form:

```
CRTPSFCFG PSFCFG(AFP/NETWRKPRT) IPDSPASTHR(*YES) RLSTMR(*SEC15)
TEXT('EUROFORM IPDS 100')
```

A completed screen looks like this:

```
PSF Configuration Information Page 1
PSF configuration . . . . . . . . . . . . : NETWRKPRT
Library . . . . . . . . . . . . . . . . . : AFP
User resource library . . . . . . . . . . : *JOBLIBL
IPDS pass through . . . . . . . . . . . . : *YES
Activate release timer. . . . . . . . . . : *NORDYF
Release timer . . . . . . . . . . . . . . : *SEC15
Restart timer . . . . . . . . . . . . . . : *IMMED
SNA retry count . . . . . . . . . . . . . : 2
Delay time between retries. . . . . . . . : 0
Blank page. . . . . . . . . . . . . . . . : *YES
Page size control . . . . . . . . . . . . : *YES
Resident fonts. . . . . . . . . . . . . . : *YES
Resource retention. . . . . . . . . . . . : *YES
Edge orient . . . . . . . . . . . . . . . : *NO
Remote location . . . . . . . . . . . . . :
Name or address . . . . . . . . . . . . . : *NONE
TCP/IP port . . . . . . . . . . . . . . . : *NONE
TCP/IP activation timer . . . . . . . . . : 170
PSF defined options . . . . . . . . . . . : *NONE
Text description. . . . . . . . . . . . . : EUROFORM IPDS 100
Device resource library list. . . . . . . : *DFT
```

Then do the following:

Ping the IP address to verify communication with the printer:

```
PING '192.168.0.97'
```

Vary the printer on:

```
VRYCFG <DEVICE NAME> CFGTYPE(*DEV) STATUS(*ON)
```

Start the print writer:

```
STRPRTWTR <DEVICE NAME>
```

## AS/400 settings for version 4.2

To configure IPDS printing on OS/400 V4R2, you must use two commands:

- CRTDEVPRT
- CRTPSFCFG

### Configuring PSF with CRTDEVPRT on V4R2

*Note: Where the text says <DEVICE NAME>, you should write the name that you want to assign to your specific hp LaserJet printer with the EuroForm IPDS 100 DIMM.*

On the AS/400 command line, enter a command in the form:

```
CRTDEVPRT DEVD(<DEVICE NAME>) DEVCLS(*LAN) TYPE(*IPDS) MODEL(0)
LANATTACH(*IP) AFP(*YES) PORT(9100) FONT(11) FORMFEED(*AUTOCUT)
RMTLOCNAME('192.168.0.97) USRDFNOBJ(AFP/NETWRKPRT *PSFCFG)
TEXT('EUROFORM IPDS 100')
```

A completed screen looks like this:

```
Display Device Description Page 1
5716SS1 V4R2M0 981108 BLDRB1 04/04/02 10:02:53
Device description . . . . . : DEVD        <DEVICE NAME>
Option . . . . . : OPTION      *ALL
Category of device . . . . . :             *PRT
Device class . . . . . : DEVCLS      *LAN
Device type. . . . . : TYPE        *IPDS
Device model . . . . . : MODEL       0
LAN attachment . . . . . : LANATTACH   *IP
User-defined object. . . . . : USRDFNOBJ   NETWRKPRT
Library. . . . . : AFP
Object type. . . . . :             *PSFCFG
Data transform program . . . . . : USRDTATFM   *NONE
User-defined driver program . . . .: USRDRVPGM   *NONE
Advanced function printing . . . . : AFP         *YES
Port number. . . . . : PORT        9100
Online at IPL. . . . . : ONLINE      *YES
Font . . . . . : FONT
Identifier . . . . . :             011
Point size . . . . . :             *NONE
Form feed. . . . . : FORMFEED    *AUTOCUT
Separator drawer . . . . . : SEPDRAWER   *FILE
Separator program. . . . . : SEPPGM      *NONE
Library. . . . . :
Printer error message. . . . . : PRTERRMSG   *INQ
Message queue. . . . . : MSGQ        QSYSOPR
Library. . . . . :             *LIBL
Activation timer . . . . . : ACTTMR      170
Maximum pending requests . . . . . : MAXPNDRQS   6
Print while converting . . . . . : PRTCVT      *YES
Print request timer. . . . . : PRTRQSTMR   *NOMAX
Form definition. . . . . : FORMDF      F1C10110
Library. . . . . :             *LIBL
Remote location. . . . . : RMTLOCNAME
Name or address. . . . . :             '192.168.0.97'
Dependent location name. . . . . : DEPLOCNAME  *NONE
Text . . . . . : TEXT        EUROFORM IPDS 100
User-defined options . . . . . : USRDFNOPT
```

### To configure AS/400 for IPDS printing on V4R2

On the AS/400 command line, enter a command in the form:

```
CRTPSFCFG PSFCFG(AFP/NETWRKPRT) IPDSPASTHR(*YES) RLSTMR(*SEC15)
TEXT('EUROFORM IPDS 100')
```

A completed screen looks like this:

```
PSF Configuration Information Page 1
PSF configuration . . . . . . . . . . . : NETWRKPRT
Library . . . . . . . . . . . . . . . . : AFP
User resource library . . . . . . . . . : *JOBLIBL
IPDS pass through . . . . . . . . . . . : *YES
Activate release timer. . . . . . . . . : *NORDYF
Release timer . . . . . . . . . . . . . : *SEC15
Restart timer . . . . . . . . . . . . . : *IMMED
SNA retry count . . . . . . . . . . . . : 2
Delay time between retries. . . . . . . : 0
Blank page. . . . . . . . . . . . . . . : *YES
Page size control . . . . . . . . . . . : *YES
Resident fonts. . . . . . . . . . . . . : *YES
Resource retention. . . . . . . . . . . : *YES
Edge orient . . . . . . . . . . . . . . : *NO
Remote location . . . . . . . . . . . . :
Name or address . . . . . . . . . . . . : *NONE
TCP/IP port . . . . . . . . . . . . . . : *NONE
TCP/IP activation timer . . . . . . . . : 170
PSF defined options . . . . . . . . . . : *NONE
Text description. . . . . . . . . . . . : EUROFORM IPDS 100
Device resource library list. . . . . . : *DFT
```

Then do the following:

Ping the IP address to verify communication with the printer:

```
PING '192.168.0.97'
```

Vary the printer on:

```
VRYCFG <DEVICE NAME> CFGTYPE(*DEV) STATUS(*ON)
```

Start the print writer:

```
STRPRTWTR <DEVICE NAME>
```

## AS/400 settings for version 4.3

To configure IPDS printing on OS/400 V4R3, you must use two commands:

- CRTDEVPRT
- CRTPSFCFG

### Configuring PSF with CRTDEVPRT on V4R3

*Note: Where the text says <DEVICE NAME>, you should write the name that you want to assign to your specific hp LaserJet printer with the EuroForm IPDS 100 DIMM.*

On the AS/400 command line, enter a command in the form:

```
CRTDEVPRT DEVD(<DEVICE NAME>) DEVCLS(*LAN) TYPE(*IPDS) MODEL(0)
LANATTACH(*IP) AFP(*YES) PORT(9100) FONT(11) FORMFEED(*AUTOCUT)
RMTLOCNAME('192.168.0.97) USRDFNOBJ(AFP/NETWRKPRT *PSFCFG)
TEXT('EUROFORM IPDS 100')
```

A completed screen looks like this:

```
Display Device Description Page 1
5716SS1 V4R3M0 981108 BLDRB1 04/04/02 10:27:14
Device description . . . . . : DEVD        <DEVICE NAME>
Option . . . . . : OPTION      *ALL
Category of device . . . . . :             *PRT
Device class . . . . . : DEVCLS      *LAN
Device type. . . . . : TYPE        *IPDS
Device model . . . . . : MODEL       0
LAN attachment . . . . . : LANATTACH   *IP
User-defined object. . . . . : USRDFNOBJ   NETWRKPRT
Library. . . . . : AFP
Object type. . . . . :             *PSFCFG
Data transform program . . . . . : USRDTATFM   *NONE
User-defined driver program . . . .: USRDRVPGM   *NONE
Advanced function printing . . . . : AFP         *YES
Port number. . . . . : PORT        9100
Online at IPL. . . . . : ONLINE      *YES
Font . . . . . : FONT
Identifier . . . . . :             011
Point size . . . . . :             *NONE
Form feed. . . . . : FORMFEED    *AUTOCUT
Separator drawer . . . . . : SEPDRAWER   *FILE
Separator program. . . . . : SEPPGM      *NONE
Library. . . . . :
Printer error message. . . . . : PRTERRMSG   *INQ
Message queue. . . . . : MSGQ        QSYSOPR
Library. . . . . :             *LIBL
Activation timer . . . . . : ACTTMR      170
Maximum pending requests . . . . . : MAXPNDRQS   6
Print while converting . . . . . : PRTCVT      *YES
Print request timer. . . . . : PRTRQSTMR   *NOMAX
Form definition. . . . . : FORMDF      F1C10110
Library. . . . . :             *LIBL
Remote location. . . . . : RMTLOCNAME
Name or address. . . . . :             '192.168.0.97'
Dependent location name. . . . . : DEPLOCNAME  *NONE
Text . . . . . : TEXT        EUROFORM IPDS 100
User-defined options . . . . . : USRDFNOPT
```

### To configure AS/400 for IPDS printing on V4R3

On the AS/400 command line, enter a command in the form:

```
CRTPSFCFG PSFCFG(AFP/NETWRKPRT) IPDSPASTHR(*YES) RLSTMR(*SEC15)
TEXT('EUROFORM IPDS 100')
```

A completed screen looks like this:

```
PSF Configuration Information Page 1
PSF configuration . . . . . . . . . . . . : NETWRKPRT
Library . . . . . . . . . . . . . . . . . : AFP
User resource library . . . . . . . . . . : *JOBLIBL
IPDS pass through . . . . . . . . . . . . : *YES
Activate release timer. . . . . . . . . . : *NORDYF
Release timer . . . . . . . . . . . . . . : *SEC15
Restart timer . . . . . . . . . . . . . . : *IMMED
SNA retry count . . . . . . . . . . . . . : 2
Delay time between retries. . . . . . . . : 0
Blank page. . . . . . . . . . . . . . . . : *YES
Page size control . . . . . . . . . . . . : *YES
Resident fonts. . . . . . . . . . . . . . : *YES
Resource retention. . . . . . . . . . . . : *YES
Edge orient . . . . . . . . . . . . . . . : *NO
Remote location . . . . . . . . . . . . . :
Name or address . . . . . . . . . . . . . : *NONE
TCP/IP port . . . . . . . . . . . . . . . : *NONE
TCP/IP activation timer . . . . . . . . . : 170
PSF defined options . . . . . . . . . . . : *NONE
Text description. . . . . . . . . . . . . : EUROFORM IPDS 100
Device resource library list. . . . . . . : *DFT
```

Then do the following:

Ping the IP address to verify communication with the printer:

```
PING '192.168.0.97'
```

Vary the printer on:

```
VRYCFG <DEVICE NAME> CFGTYPE(*DEV) STATUS(*ON)
```

Start the print writer:

```
STRPRTWTR <DEVICE NAME>
```

## AS/400 settings for version 4.4, 4.5 and 5.1

To configure IPDS printing on OS/400 V4R4, V4R5 and V5R1, you must use two commands:

- CRTDEVPRT
- CRTPSFCFG

### Configuring PSF with CRTDEVPRT on V4R4

*Note: Where the text says <DEVICE NAME>, you should write the name that you want to assign to your specific hp LaserJet printer with the EuroForm IPDS 100 DIMM.*

On the AS/400 command line, enter a command in the form:

```
CRTDEVPRT DEVD(<DEVICE NAME>) DEVCLS(*LAN) TYPE(*IPDS) MODEL(0)
LANATTACH(*IP) AFP(*YES) PORT(9100) FONT(11) FORMFEED(*AUTOCUT)
RMTLOCNAME('192.168.0.97) USRDFNOBJ(AFP/NETWRKPRT *PSFCFG)
TEXT('EUROFORM IPDS 100')
```

A completed screen looks like this:

```
Display Device Description Page 1
5716SS1 V4R4M0 981108 BLDRB1 04/04/02 10:02:47
Device description . . . . . : DEVD        <DEVICE NAME>
Option . . . . . : OPTION      *ALL
Category of device . . . . . :             *PRT
Device class . . . . . : DEVCLS      *LAN
Device type. . . . . : TYPE        *IPDS
Device model . . . . . : MODEL       0
LAN attachment . . . . . : LANATTACH   *IP
User-defined object. . . . . : USRDFNOBJ   NETWRKPRT
Library. . . . . : AFP
Object type. . . . . :             *PSFCFG
Data transform program . . . . . : USRDTATFM   *NONE
User-defined driver program . . . .: USRDRVPGM   *NONE
Advanced function printing . . . . : AFP         *YES
Port number. . . . . : PORT        9100
Online at IPL. . . . . : ONLINE      *YES
Font . . . . . : FONT
Identifier . . . . . :             011
Point size . . . . . :             *NONE
Form feed. . . . . : FORMFEED    *AUTOCUT
Separator drawer . . . . . : SEPDRAWER   *FILE
Separator program. . . . . : SEPPGM      *NONE
Library. . . . . :
Printer error message. . . . . : PRTERRMSG   *INQ
Message queue. . . . . : MSGQ        QSYSOPR
Library. . . . . :             *LIBL
Activation timer . . . . . : ACTTMR      170
Maximum pending requests . . . . . : MAXPNDRQS   6
Print while converting . . . . . : PRTCVT      *YES
Print request timer. . . . . : PRTRQSTMR   *NOMAX
Form definition. . . . . : FORMDF      F1C10110
Library. . . . . :             *LIBL
Remote location. . . . . : RMTLOCNAME
Name or address. . . . . :             '192.168.0.97'
Dependent location name. . . . . : DEPLOCNAME  *NONE
Text . . . . . : TEXT        EUROFORM IPDS 100
User-defined options . . . . . : USRDFNOPT
```

### To configure AS/400 for IPDS printing on V4R4

On the AS/400 command line, enter a command in the form:

```
CRTPSFCFG PSFCFG(AFP/NETWRKPRT) IPDSPASTHR(*YES) RLSTMR(*SEC15)
TEXT('EUROFORM IPDS 100')
```

A completed screen looks like this:

```
PSF Configuration Information Page 1
PSF configuration . . . . . : NETWRKPRT
Library . . . . . : AFP
User resource library . . . . . : *JOBLIBL
IPDS pass through . . . . . : *YES
Activate release timer. . . . . : *NORDYF
Release timer . . . . . : *SEC15
Restart timer . . . . . : *IMMED
SNA retry count . . . . . : 2
Delay time between retries. . . . . : 0
Blank page. . . . . : *YES
Page size control . . . . . : *YES
Resident fonts. . . . . : *YES
Resource retention. . . . . : *YES
Edge orient . . . . . : *NO
Remote location . . . . . :
Name or address . . . . . : *NONE
TCP/IP port . . . . . : *NONE
TCP/IP activation timer . . . . . : 170
PSF defined options . . . . . : *NONE
Text description. . . . . : EUROFORM IPDS 100
Device resource library list. . . . . : *DFT
```

Then do the following:

Ping the IP address to verify communication with the printer:

**PING ’192.168.0.97’**

Vary the printer on:

**VRYCFG <DEVICE NAME> CFGTYPE(*DEV) STATUS(*ON)**

Start the print writer:

**STRPRTWTR <DEVICE NAME>**

# Troubleshooting

If you have any questions or problems in connection with the EuroForm IPDS 100 DIMM please contact your supplier or alternatively use one of the methods described below.

Please use the checklist below to make sure that the configuration of the IPDS 100 DIMM and the IBM host system is correct.

1) Check timers and port numbers.

Make sure that the following parameters in the printer are set this way:

a) Set the I/O Timeout to 60 seconds.

b) Set the JetDirect Idle Timeout to 300 seconds.

On the IBM host system you will have to set the following parameters:

When using an AS/400.

a) Set the "Port number" to "9100" in the Device Description.

b) Check that a "PSFCFG" is defined in the Device Description.

c) Set the "Release Timer" in the PSFCFG to " *SEC15 ".

or

When using an OS/390 mainframe.

a) Set the "DISCINTV" (Disconnect interval timer) to 30 seconds.

b) Set the "PORTNO" to "9100"

2) Please check that the IPDS 100 requirements are full-filled.

http://www.euroform.com/english/emulations/ipds100/requirements.asp

3) Check that the printer has the correct firmware level.

http://www.euroform.com/english/faq/default.asp?ProductID=2&Language=english&FaqID=3

4) Check our FAQ to see if your problem has been resolved.

http://www.euroform.com/english/faq/default.asp?ProductID=2&Language=english

5) Check the complete host configuration.

Please refer to either the section “PSF/MVS AFP printing using TCP/IP” or the section “PSF/400 AFP printing using TCP/IP” in this manual.

6) If your problem is related to wrong text, wrong font, missing text, text not positioned correct, missing pages etc. then you can make a data stream trace using the build-in IPDS 100 Debug Tracer. Please see the section “Diagnostic Tool” in this manual for further details.

7) If your problem persists please contact your local supplier or sent an e-mail to: support@euroform.com with a detailed description of your problem and the following documentation:

- Good and bad print examples where the error is clearly marked.
- Internal data stream trace from the IPDS 100 if it is an IPDS data stream error.
- Configuration pages from the printer including the IPDS 100 configuration page.
- Copy of the AS/400 Device Description and the PSFCFG.

or

- Copy of the start up PROG from the IBM mainframe.

### Find Product Support On The World Wide Web

The web is a great place to learn more about the EuroForm IPDS 100. With just a few quick clicks, you will find updated software, tools, training material, and technical solutions. This service is available 24 hours a day, 7 days a week, free of charge. Find us on the World Wide Web at

http://www.euroform.com/ipds100

### Get Answers Through E-mail

Get one-to-one assistance. Send your e-mail questions to support@euroform.com.

### Tools and Documentation

We have designed a variety of informative tools to assist you with training and troubleshooting. You can locate these tools at

http://www.euroform.com/ipds100

From there, you can:

- use our “Troubleshooting Tree” to resolve questions or problems with the IPDS emulation
- download training material, the latest versions of the EuroForm IPDS 100 manuals, or the product data sheet
- learn more about the EuroForm IPDS 100

# Appendix A. Technical Specifications

| | |
|---|---|
| IPDS Printer Emulation | IBM 3812/16<br>IBM 4028<br>IBM 3112/16<br>IBM Network Printers 12, 17, 24<br>IBM InfoPrint 21, 32, 40 |
| Resident IPDS Fonts | IBM 4028 Compatibility Font Set<br>IBM Core Interchange Font Set<br>IBM Coordinated Font Set |
| Network Attachment | HP JetDirect 610N Internal Print Server<br>P/N J4169A (Firmware version L.20.14 or later)<br><br>HP JetDirect 615N Internal Print Server<br>P/N J6057A (Firmware version L.22.08 or later)<br><br>Traditional coax and twinax attachments are not supported |
| Host Software Requirements | PSF/MVS V2.2 or later<br>OS/400 V3R1, V3R2, V3R6, V3R7, V4R1 or later through PSF |
| IPDS Printing Protocol | TCP/IP |
| Browser for configuration and management | Minimum Microsoft Internet Explorer 5.5 with JavaScript version 1.1 enabled.<br>(It is recommended to use Microsoft Internet Explorer 6.0 or newer for optimal performance) |

| | |
|---|---|
| Printer Memory Requirements | Minimum 32 MB RAM |
| Supported Printers | hp LaserJet 4100<br>hp LaserJet 4100mfp<br>hp LaserJet 4200<br>hp LaserJet 4300<br>hp LaserJet 9000<br>hp LaserJet 9000mfp<br>hp Color LaserJet 4600<br>hp Color LaserJet 5500 |

# Appendix B. Font and Code Page Information

The EuroForm IPDS 100 supports outline fonts from both the IBM Core Interchange Font Set and the IBM Coordinated Font Set as resident fonts. In addition, a selection of these fonts is grouped into the 4028 Compatibility Font set. This set is used to represent the 4028 base internal raster fonts for limited compatibility. The font technologies supported are:

IBM Core Interchange - Type 1 Outlines
IBM Coordinated - Type 1 Outlines
4028 Compatibility - Type 1 Outlines

Double Byte Character Set (DBCS) Resident fonts are currently not supported.

## IBM Core Interchange Resident Scalable Font Set

The IBM Core Interchange fonts as shown in Table 1 will be supported as resident fonts in the following language groups:

- Latin 1/2/3/4/5
- Symbols
- Arabic
- Cyrillic Greek
- Hebrew

Table 1 lists the typefaces resident in the EuroForm IPDS 100 and includes the valid FGID and code pages for each font. These character sets have GCSGID 1355.

## XOA-RRL Replies for Font Character Sets

The resident set as shown in Table 1 will support a font character set of any valid font width when queried as an individual font character set. When queried for a list of font character sets, the resident character sets will be reported with a font width of zero. A font width of zero indicates that the font is scalable.

| Typeface | FGID | GCSGID | Font Width |
|---|---|---|---|
| **Latin 1/2/3/4/5 with Euro character** | | | |
| Times New Roman Medium | 2308 | 1355 | Scalable |
| Times New Roman Bold | 2309 | 1355 | Scalable |
| Times New Roman Italic Medium | 2310 | 1355 | Scalable |
| Times New Roman Italic Bold | 2311 | 1355 | Scalable |
| Helvetica Roman Medium | 2304 | 1355 | Scalable |
| Helvetica Roman Bold | 2305 | 1355 | Scalable |
| Helvetica Italic Medium | 2306 | 1355 | Scalable |
| Helvetica Italic Bold | 2307 | 1355 | Scalable |
| Courier Roman Medium | 416 | 1355 | Scalable |
| Courier Roman Bold | 420 | 1355 | Scalable |
| Courier Italic Medium | 424 | 1269 | Scalable |
| Courier Italic Bold | 428 | 1269 | Scalable |
| **Symbols** | | | |
| Times New Roman Medium | 2308 | 1275 | Scalable |
| Times New Roman Bold | 2309 | 1275 | Scalable |
| Helvetica Roman Medium | 2304 | 1275 | Scalable |
| Helvetica Roman Bold | 2305 | 1275 | Scalable |
| Courier Roman Medium | 416 | 1275 | Scalable |
| Courier Roman Bold | 420 | 1275 | Scalable |
| **Cyrillic Greek** | | | |
| Times New Roman Medium | 2308 | 1300 | Scalable |
| Times New Roman Bold | 2309 | 1300 | Scalable |

| Typeface | FGID | GCSGID | Font Width |
|---|---|---|---|
| Times New Roman Italic Medium | 2310 | 1300 | Scalable |
| Times New Roman Italic Bold | 2311 | 1300 | Scalable |
| Helvetica Roman Medium | 2304 | 1300 | Scalable |
| Helvetica Roman Bold | 2305 | 1300 | Scalable |
| Helvetica Italic Medium | 2306 | 1300 | Scalable |
| Helvetica Italic Bold | 2307 | 1300 | Scalable |
| Courier Roman Medium | 416 | 1300 | Scalable |
| Courier Roman Bold | 420 | 1300 | Scalable |
| Courier Italic Medium | 424 | 1300 | Scalable |
| Courier Italic Bold | 428 | 1300 | Scalable |
| **Arabic** | | | |
| ITC Boutros Setting Medium | 2308 | 1264 | Scalable |
| ITC Boutros Setting Bold | 2309 | 1264 | Scalable |
| ITC Boutros Setting Italic Medium | 2310 | 1264 | Scalable |
| ITC Boutros Setting Italic Bold | 2311 | 1264 | Scalable |
| ITC Boutros Modern Rokaa Medium | 2304 | 1264 | Scalable |
| ITC Boutros Modern Rokaa Bold | 2305 | 1264 | Scalable |
| ITC Boutros Modern Rokaa Italic Medium | 2306 | 1264 | Scalable |
| ITC Boutros Modern Rokaa Italic Bold | 2307 | 1264 | Scalable |

| Typeface | FGID | GCSGID | Font Width |
|---|---|---|---|
| Boutros Typing Medium | 416 | 1264 | Scalable |
| Boutros Typing Bold | 420 | 1264 | Scalable |
| Boutros Typing Italic Medium | 424 | 1264 | Scalable |
| Boutros Typing Italic Bold | 428 | 1264 | Scalable |
| **Hebrew** | | | |
| Narkissim Medium | 2308 | 1265 | Scalable |
| Narkissim Bold | 2309 | 1265 | Scalable |
| Narkissim Italic Medium | 2310 | 1265 | Scalable |
| Narkissim Italic Bold | 2311 | 1265 | Scalable |
| Narkiss Tam Medium | 2304 | 1265 | Scalable |
| Narkiss Tam Bold | 2305 | 1265 | Scalable |
| Narkiss Tam Italic Medium | 2306 | 1265 | Scalable |
| Narkiss Tam Italic Bold | 2307 | 1265 | Scalable |
| Shalom Medium | 416 | 1265 | Scalable |
| Shalom Bold | 420 | 1265 | Scalable |
| Shalom Italic Medium | 424 | 1265 | Scalable |
| Shalom Italic Bold | 428 | 1265 | Scalable |

***Table 1 . IBM Core Interchange Resident Scalable Font Set***

## GCSGID Subsets

Table 2 provides a mapping of the valid subsets of the GCSGIDs listed for the IBM Core Interchange fonts.

| GCSGID | Valid GCSGID Subsets |
|---|---|
| 1269 | 0101, 0103, 0119, 0251, 0265, 0269, 0273, 0277, 0281, 0285, 0288, 0289, 0293, 0297, 0301, 0305, 0309, 0313, 0317, 0321, 0325, 0329, 0337, 0341, 0611, 0697, 0919, 0959, 0965, 0980, 0982, 0983, 0987, 0990, 0991, 0993, 0995, 1111, 1132, 1133, 1145, 1146, 1149, 1152, 1166, 1167, 1174, 1188, 1189, 1198, 1220, 1232, 1233, 1237, 1256, 1258, 1259, 1260, 1261, 1268, 1286, 1301, 1302, 2039 |
| 1355 | 1269, 2041 |
| 2041 | 0695, 0988, 1353, 1412, 2039 |
| 1275 | 0340, 0630, 0909, 1191, 1257 |
| 1264 | 0235, 0994, 1154, 1162, 1177, 1244 |
| 1265 | 0941, 0687, 0986, 0992, 1147, 1199, 1217, 1218 |
| 1300 | 0218, 0925, 0960, 0981, 0985, 0996, 0998, 1150, 1190, 1231, 1235, 1249, 1251, 1276, 1401 |

***Table 2. GCSGID Subsets for IBM Core Interchange Fonts***

## IBM Core Interchange Resident Code Page Set

Table 3 lists the code pages used with the IBM Core Interchange Resident Fonts. Not all code Pages apply to each font; the character set determines this. Please correlate the GCSGIDs found in Table 3 with the correct IBM Core Interchange Font GCSGID superset in Table 2 to determine which code pages apply to a particular font family.

| Code Page Global ID (CPGID) | Graphic Character Set ID (GCSGID) | Language Supported |
|---|---|---|
| **Latin 1 Country Extended Code Pages** | | |
| 037 | 697 | US English, Canadian English, Canadian French, Dutch, Brazilian Portuguese, Portuguese |
| 273 | 697 | Austrian, German |
| 274 | 697 | Belgian |
| 275 | 697 | Brazilian |
| 277 | 697 | Danish, Norwegian |
| 278 | 697 | Finnish, Swedish |
| 280 | 697 | Italian |
| 281 | 697 | Japanese |
| 282 | 697 | Portuguese |
| 284 | 697 | Castillian Spanish, Latin American Spanish |
| 285 | 697 | UK English |
| 297 | 697 | French, Catalan |
| 500 | 697 | Multinational, Belgium French, Belgium Dutch, Swiss French, Swiss German, Swiss Italian |
| 871 | 697 | Icelandic |
| **Latin 1 EBCDIC Publishing Code Pages** | | |
| 1140 | 695 | US English, Canadian English, Canadian French, Netherlands, Brazil, Portugal |
| 1142 | 695 | Austrian, German |
| 1142 | 695 | Danish, Norwegian |
| 1143 | 695 | Finnish, Swedish |
| 1144 | 695 | Italian |
| 1145 | 695 | Castilian Spanish, Latin American Spanish |
| 1146 | 695 | UK English |
| 1147 | 695 | French |
| 1148 | 695 | Multinational ECECP, Belgian French, Belgian Dutch, Switzerland |

| Code Page Global ID (CPGID) | Graphic Character Set ID (GCSGID) | Language Supported |
|---|---|---|
| 1149 | 695 | Iceland |
| **Latin 1 Country Extended Code Pages with Euro Character** | | |
| 361 | 1145 | Multinational, Belgium French, Belgium Dutch, Swiss French, Swiss German, Swiss Italian |
| 382 | 1145 | German |
| 383 | 1145 | Belgian |
| 384 | 1145 | Brazilian Portuguese |
| 385 | 1145 | Canadian French |
| 386 | 1145 | Danish, Norwegian |
| 387 | 1145 | Finnish, Swedish |
| 388 | 1145 | French, Catalan |
| 389 | 1145 | Italian |
| 390 | 1145 | Japanese |
| 391 | 1145 | Portuguese |
| 392 | 1145 | Castillian Spanish |
| 393 | 1145 | Latin American Spanish |
| 394 | 1145 | UK English |
| 395 | 1145 | US English, Canadian English |
| **Latin 1 ASCII Code Pages** | | |
| 437 | 919 | Multinational, US English, UK English, Dutch, German, Finnish, French, Italian, Spanish, Swedish |
| 850 | 980 | Multinational PC |
| 858 | 988 | Multinational PC with Euro |
| 860 | 990 | Portuguese (Primary = 850) |
| 861 | 991 | Icelandic (Primary = 850) |
| 863 | 993 | Canadian French (Primary = 850) |
| 865 | 995 | Nordic (Primary = 850) |
| 1004 | 1146 | IBM PC Desktop Publishing |
| 819 | 697 | ISO Latin 1 |
| 1252 | 1412 | Windows Latin 1 |

| Code Page Global ID (CPGID) | Graphic Character Set ID (GCSGID) | Language Supported |
|---|---|---|
| **Latin 2/3/4/5 EBCDIC and ASCII Code Pages** | | |
| 852 | 982 | Croatian, Czech, East German, Hungarian, Polish, Romanian, Slovak, Slovenian |
| 870 | 959 | Latin 2 Multilingual |
| 912 | 959 | Latin 2 ISO/ ANSI 8 Bit |
| 853 | 983 | Latin 3 Multilingual PC |
| 905 | 1286 | Latin 3 Multilingual |
| 1069 | 1256 | Latin 4 EBCDIC |
| 914 | 1256 | Latin 4 ISO/ASCII |
| 857 | 987 | Latin 5 PC |
| 920 | 1152 | Latin 5 ISO/ANSI 8 Bit |
| 1026 | 1152 | 1026 1152 Latin 5 |
| **Latin 9 EBCDIC and ASCII Code Pages** | | |
| 923 | 1353 | Latin 9 |
| 924 | 1353 | Latin 9 EBCDIC |
| **Latin EBCDIC DCF Code Pages** | | |
| 1002 | 1132 | DCF Release 2 Compatibility |
| 1003 | 1133 | US Text Subset |
| 1068 | 1259 | Text with Numeric Spacing |
| 1039 | 1258 | GML List Symbols |
| **Cyrillic and Greek EBCDIC and ASCII Code Pages** | | |
| 880 | 960 | Cyrillic Multilingual (Primary = 1025) |
| 915 | 1150 | Cyrillic ISO/ASCII 8 Bit |
| 855 | 985 | Cyrillic PC |
| 866 | 996 | Cyrillic #2 PC |
| 1025 | 1150 | Cyrillic Multilingual |
| 423 | 218 | Greek 183 (Primary = 875) |
| 813 | 925 | Greek ISO/ASCII 8 Bit |
| 851 | 981 | Greek PC (Primary = 869) |
| 869 | 998 | Greek PC |
| 875 | 925 | Greek |
| 1039 | 1258 | GML List Symbols |
| **Arabic EBCDIC and ASCII Code Pages** | | |
| 420 | 235 | Arabic Bilingual |
| 864 | 994 | Arabic PC |
| 1008 | 1162 | Arabic ISO/ASCII 8 Bit |

| Code Page Global ID (CPGID) | Graphic Character Set ID (GCSGID) | Language Supported |
|---|---|---|
| 1029 | 1154 | Arabic Extended ISO/ASCII 8 Bit |
| 1046 | 1177 | Arabic Extended ISO/ASCII 8 Bit |
| | | 1039 1258 GML List Symbols |
| **Hebrew EBCDIC and ASCII Code Pages** | | |
| 916 | 941 | Hebrew ISO/ASCII 8 Bit |
| 1028 | 1199 | 1028 1199 Hebrew Publishing |
| 424 | 941 | Hebrew |
| 803 | 1147 | Hebrew Character Set A (Primary = 424) |
| 856 | 986 | Hebrew PC (Primary = 862) |
| 862 | 992 | Hebrew PC |
| 1039 | 1258 | GML List Symbols |
| **Symbols** | | |
| 259 | 340 | Symbols, Set 7 |
| 899 | 340 | Symbols, Set 7 ASCII |
| 1087 | 1257 | Symbols, Adobe |
| 1038 | 1257 | Symbols, Adobe ASCII |
| 1091 | 1191 | Symbols, Modified Set 7 |
| 1092 | 1191 | Symbols, Modified Set 7 ASCII |
| 363 | 630 | Symbols, Set 8 |
| 829 | 909 | Math Symbols |

***Table 3. IBM Core Interchange Resident Code Page Set***

## 4028 Compatibility Resident Font Set

Table 4 lists the typefaces resident in the Euroform IPDS 100 and includes the valid FGID and code pages for each font. Fonts listed with an “Alt FGID”, are used as a substitute for the requested “Alt FGID”. The EuroForm IPDS 100 will substitute Times New Roman (from the IBM Core Interchange Set) for the Times Roman fonts listed in Table 4. The Courier fonts will also come from the IBM Core Interchange Set. All the remaining listed fonts will be from the IBM Coordinated Font Set (see Table 6 on page 85). See Table 5 on page 84 for an explanation of the groups used in the “Code Pages” column.

**Notes:**

1. Prestige fonts used with code pages with a CPGID of 259 are mapped to the Courier Roman Medium Symbols font (FGID 416 GCSGID 1275) as shown in Table 1 on page 75. When the printer is in Box-Draw mode, any font, which does not indicate CPGID 259 support, will print with the Roman Medium Symbols font in a point size of 10 (12 pitch) when used with Code Page 259. This emulates 4028 behaviour.

2. Courier FGIDs 11 and 85 and Prestige FGIDs 12 and 86 now support Code Page 259 (when Box-Draw mode is on) to the extent these were supported in the 4028. In this mode, CPGID 1091 is substituted for CPGID 259 in order to print box-draw characters that line up with each other. The registered CPGID 259 does not have such characters, and is used when not in Box-Draw mode.

3. To match the 4028 and 3116 printed font sizes, the FGIDs 254, 256, 281, and 290 are scaled as follows:

### FGID Vertical x Horizontal Scale Factors (points)

**254** 7.8 vpt x 7.0 hpt

**256** 7.8 vpt x 7.0 hpt

**281** 7.0 vpt x 6.0 hpt

**290** 5.0 vpt x 4.5 hpt

| Typeface | FGID | Alt FGID | Pitch | Point Size | Font Width | Code Pages |
|---|---|---|---|---|---|---|
| APL | 76 | | 12 | 10 | 120 | 310 |
| Boldface | 159 | | Proportional | 12 | 120 | A, B |
| Courier | 11 | | 10 | 12 | 144 | 259, A, B |
| Courier | 85 | | 12 | 10 | 120 | 259, A, B |
| Courier | 223 | | 15 | 9 | 96 | A, B |
| Courier Ultra Expanded | 244 | | 5 | 12 | 288 | A, B |
| Courier.17 | 252 | | 17.1 | 11 | 84 | A, B |
| Courier.17ss | 254 | | 17.1 | 8.5 | 84 | A, B |
| Courier Bold | 46 | | 10 | 12 | 144 | A, B |

| Typeface | FGID | Alt FGID | Pitch | Point Size | Font Width | Code Pages |
|---|---|---|---|---|---|---|
| Courier Bold | 108 | | 12 | 10 | 120 | A, B |
| Courier Italic | 18 | | 10 | 12 | 144 | A, B |
| Courier Italic | 92 | | 12 | 10 | 120 | A, B |
| Letter Gothic | 281 | | 20 | 7.5 | 72 | A, B |
| OCR A | 19 | | 10 | 12 | 144 | 892 |
| OCR B | 03 | | 10 | 12 | 144 | 893 |
| Prestige Pica | 12 | | 10 | 12 | 144 | 259, A, B |
| Prestige Elite | 86 | | 12 | 10 | 120 | 259, A, B |
| Prestige | 221 | | 15 | 9 | 96 | A, B |
| Prestige | 256 | | 17.1 | 8.5 | 84 | A, B |
| Prestige PSM | 164 | | Proportional | 12 | 120 | A, B |
| Prestige PSM Roman Bold | 701 | | Proportional | 12 | 120 | A, B |
| Prestige Pica Bold | 60 | | 10 | 12 | 144 | A, B |
| Prestige Elite Bold | 111 | | 12 | 10 | 120 | A, B |
| Prestige Elite Italic | 112 | | 12 | 10 | 120 | A, B |
| Times Roman | 5687 | 760 | Typo | 6 | 40 | A |
| Times Roman | 5687 | 751 | Typo | 8 | 53 | A |
| Times Roman | 5687 | 1051 | Typo | 10 | 67 | A |
| Times Roman | 5687 | 1351 | Typo | 12 | 80 | A |
| Times Roman Bold | 5707 | 1053 | Typo | 10 | 67 | A |

| Typeface | FGID | Alt FGID | Pitch | Point Size | Font Width | Code Pages |
|---|---|---|---|---|---|---|
| Times Roman Bold | 5707 | 761 | Typo | 12 | 80 | A |
| Times Roman Bold | 5707 | 762 | Typo | 14 | 93 | A |
| Times Roman Bold | 5707 | 1803 | Typo | 18 | 120 | A |
| Times Roman Bold | 5707 | 2103 | Typo | 24 | 160 | A |
| Times Roman Italic | 5815 | 1056 | Typo | 10 | 67 | A |
| Times Roman Italic | 5815 | 763 | Typo | 12 | 80 | A |
| Times Roman Bold Italic | 5835 | 764 | Typo | 10 | 67 | A |
| Times Roman Bold Italic | 5835 | 765 | Typo | 12 | 80 | A |
| Gothic Text | 203 | | 13.3 | 9 | 108 | A, B |
| Gothic Text | 283 | | 20 | 6 | 72 | A, B |
| Gothic Text | 290 | | 26.7 | 5 | 54 | A, B |

***Table 4. 4028 Compatibility Resident Font Set***

## 4028 Compatibility Resident Code Page Set

Table 5 provides an explanation of the groups as used in the Code Pages column of Table 4.

| Code Page Global ID (CPGID) | Graphic Character Set ID (GCSGID) |
|---|---|
| **Group A** | |
| 037, 273, 274, 277, 278, 280, 281, 284, 285, 297, 500, 871 | 697 |
| 1140, 1141, 1142, 1143, 1144, 1145, 1146, 1147, 1148, 1149 | 695 |
| 038, 367 | 103 |
| 260 | 341 |

| Code Page Global ID (CPGID) | Graphic Character Set ID (GCSGID) |
|---|---|
| 276 | 277 |
| 286 | 317 |
| 287 | 321 |
| 288 | 325 |
| 1002 | 1132 |
| 437 | 919 |
| 850 | 980 |
| 858 | 988 |
| 1003 | 1133 |
| **Group B** | |
| 256 (Replaced by 500) | 337 |
| 289 (Replaced by 500, but missing obsolete "Peseta" character) | 329 |
| **Miscellaneous** | |
| 310 | 963 |
| 259 | 340 |
| 892 | 968 |
| 893 | 969 |
| 1303 (Used internally for resident Code 128 barcode font and postal bar code font support) | n/a |

***Table 5. 4028 Compatibility Resident Code Page Set***

## IBM Coordinated Font Set

Table 6 lists the scalable IBM Coordinated font set typefaces resident in the Euroform IPDS 100 and includes the valid FGID and code pages for each font. Where the IBM Core Interchange code pages are referenced in Table 3, only the Latin 1 Country Extended, Latin 1 EBCDIC Publishing, Latin 1 ASCII and Latin EBCDIC DCF code pages are supported.

## GCSGID Subsets

Table 8 provides a mapping of the valid subsets of the GCSGIDs listed for the PSC Strategic Font Set 2.

| Typeface | FGID | GCSGID | Font Width | Code Pages |
|---|---|---|---|---|
| APL | 307 | 1304 | Scalable | 293, 310, 910 |
| APL Bold | 322 | 1304 | Scalable | 293, 310, 910 |
| Boldface | 20224 | 2041 | Scalable | |
| Gothic Text | 304 | 2041 | Scalable | |
| Letter Gothic | 400 | 2041 | Scalable | |
| Letter Gothic Bold | 404 | 2041 | Scalable | |
| OCR A | 305 | 968 | Scalable | 876, 892 |
| OCR B | 306 | 969 | Scalable | 877, 893 |
| Prestige | 432 | 2041 | Scalable | |
| Prestige Bold | 318 | 2041 | Scalable | |
| Prestige Italic | 319 | 2041 | Scalable | |
| Katakana Gothic | 304 | 1306 | Scalable | 290, 897, 1027, 1041 |

***Table 6. Resident PSCStrategic Scalable Font Set 2***

## IBM Coordinated Font Set Code Page Set

Table 7 provides the GCSGIDs and CPGIDs for the individual Code Pages listed in the Code Pages column of Table 6.

| Code Page Global ID (CPGID) | Graphic Character Set ID (GCSGID) |
|---|---|
| 293 | 380 |
| 310 | 963 |
| 910 | 1113 |
| 876, 892 | 968 |
| 877, 893 | 969 |
| 290, 1027 | 1172 |
| 897 | 1164 |
| 1041 | 1187 |

***Table 7. IBM Coordinated Font Set Code Page Set***

| GCSGID | Valid GCSGID Subsets |
|---|---|

| | |
|---|---|
| 1304 | 0380, 0963, 1113 |
| 2039 | 0101, 0103, 0119, 0251, 0265, 0269, 0273, 0277,<br>0281, 0285, 0288, 0289, 0293, 0297, 0301, 0305,<br>0309, 0313, 0317, 0321, 0325, 0329, 0337, 0341,<br>0611, 0697, 0919, 0980, 0990, 0991, 0993, 0995,<br>1132, 1133, 1145, 1146, 1149, 1198, 1220, 1258,<br>1259, 1260 |
| 1306 | 0332, 1164, 1172, 1187 |
| 2041 | 0695, 0988, 1353, 1412, 2039 |

***Table 8. GCSGID Subsets for the Strategic Font Set 2***

# Appendix C. Related Publication

IBM publications:

| | |
|---|---|
| S544-3417-05 | Intelligent Printer Data Stream Reference |
| G544-3895-09 | IPDS™ Handbook |
| S544-5312-06 | IPDS and SCS Technical Reference<br>IBM Network Printers 12, 17, 24<br>IBM InfoPrint 20, 21, 32, 40 |
| G544-3973-00 | IBM Dictionary of Printing |

# Appendix D. Glossary

| | |
|---|---|
| AFP | Advanced Function Presentation or Printing. |
| Duplex | Pertaining to printing on both sides of a sheet of paper. Contrast with simplex. |
| IPDS | IBM's Intelligent Printer Data Stream. |
| Port | In TCP/IP, a 16-bit number used to communicate between TCP and a higher-level protocol or application. Some protocols, such as the File Transfer Protocol (FTP) and the Simple Mail Transfer Protocol (SMTP), use the same port number in all TCP/IP implementations. |
| PSF | Print Services Facility. |
| TCP/IP | Transmission Control Protocol/Internet Protocol. |
| XML | Extensible Markup Language. XML is the universal format for structured documents and data on the Web. |